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COMPUTERWORLD

Borland slashes prices in bid to regain momentum

By Michael Vizard
SCOTTS VALLEY, CALIF

■ Borland International, Inc. last week went on the offensive, offering the latest version of its Quattro Pro spreadsheet for Windows and DOS for $50. Borland is looking to build momentum following a court ruling that it infringed on copyrighted Lotus Development Corp. technology.

But whether Borland has the resources necessary to withstand another price war has industry analysts wondering if its price-cutting strategy might not ultimately backfire. Borland may have to shell out millions in damages to Lotus if it loses the suit.

Undaunted, Borland pushes on. "We're shooting for a 35% unit share of the Windows spreadsheet market. That means we plan to ship 500,000 copies by Jan. 15," said Philippe Kahn, Borland's chief executive officer (see chart page 10). The company claims to have a 15% share of that market today and to have shipped close to 2 million Quattro Pro licenses for Windows and DOS.

Borland's attaining a 35% share will be critical to absorbing the costs it is likely to incur from the Lotus suit and to creating the sales volume necessary to make one of its core businesses profitable.

Borland's Philippe Kahn: *Hawking his wares at Safeway?*

Toward that end, Borland has come up with an attention-grabbing promotion for Quattro Pro 5.0 that consists of a $49.95 list price and a $39.95 competitive upgrade offer. Both run through Jan. 15.

This latest initiative is a bold attempt to gain market share at a time when many customers of Lotus' 1-2-3 spreadsheet for DOS are thinking of upgrading to 1-2-3

Borland, *page 10*

Management

Tilling technology

You're here, users are out there. So how does a scattered and decentralized organization keep from duplicating costly efforts? IS executives such as Sara Lee's Vince Swoyer have evolved a wide range of tactics, from recentralization to near complete autonomy for business units. ***See story page 75.***

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IBM revs up PowerPC

Big Blue toils to improve X86 emulation in RISC chip

By Ed Scannell and Stephen P. Kiett Jr.

IBM has quietly set up a clean room in an attempt to significantly enhance the X86 emulation abilities of its PowerPC chip, sources familiar with the project said last week.

The hope is that by improving the chip's ability to run Intel Corp.-compatible software, IBM will get its PowerPC-based servers and desktop systems off to a fast start.

While IBM's Advanced Workstation Systems Group is expected to announce the first PowerPC-based systems late next month, those systems will not have versions of the chip with the improved emulation capabilities.

It is not clear whether the PowerPC-based desktop systems expected from IBM's Power Personal Systems Division either late this year or early next year will have the improved chips,

X86 emulation, *page 20*

Roughly 1.5 million PowerPC chips are expected to ship through next year, according to Dataquest projections

Modular AIX tailored to varying application needs

By Jean S. Bozman
AUSTIN, TEXAS

IBM will field a scalable version of its AIX version of Unix for the PowerPC series of processors later this year, matching code functions to specific PowerPC hardware platforms.

Existing RISC System/6000 machines will also be able to use the new AIX code, IBM said.

Called Scalable AIX, the building-block approach will cover a wide range of computers from laptops to high-end clustered machines, IBM said. Some AIX versions will add to the 4 million lines of code in AIX Classic — the current version — while others will subtract some system utilities and special features from it.

For example, AIX Lite will have "substantially" less code than the AIX Classic, according to

AIX, *page 15*

Alliance may aid fast copper nets

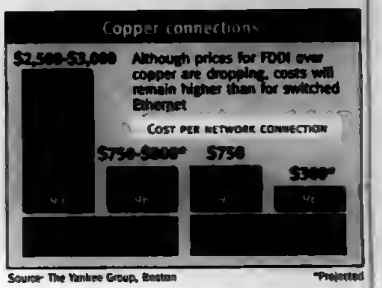
By Joanie M. Wexler and Lynda Radosevich
SAN FRANCISCO

Many user companies are excited by the prospective economies of running high-speed local-area networks over copper cabling. But early users are finding that incomplete standards, compatibility problems and missing pieces of the components puzzle are stalling efforts to build a physical network infrastructure to support networks pushing the technology envelope.

To alleviate this problem, analysts said they expect to see more vendor alliances, like the one announced at last week's Interop '93 August show between Compaq Computer Corp., cabling supplier ITT Datacom and high-speed LAN vendor SysKonnect, Inc.

The companies, each of which represents dif-

Alliance, *page 12*



Early users laud AppBuilder

By Elisabeth Horwitt
SAN FRANCISCO

If the experiences of early users are any indication, Novell, Inc.'s Visual AppBuilder is fulfilling its promise as an easy-to-use application development tool for developers who need to program in a hurry or write in an unfamiliar desktop environment.

However, users reported that AppBuilder is no panacea; it still requires intimate programming knowledge, particularly when the applications get larger and more complex. Moreover, a few key pieces are still missing, making it less of a client-independent application environment, at least initially.

Originally developed by Novell acquisition Serius, Inc., Visual AppBuilder was unveiled last spring as part of Novell's AppWare family of client application development tools. The product consists of modules of prewritten code

AppBuilder, *page 14*

INTEROP '93

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■ And, within hours of the **FTC's** decision to end its 30-month probe, the **Antitrust Division** announces its own investigation of **Microsoft**. *Page 6*

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■ **Excalibur Technology** uses neural networking to retrieve data despite entry errors and sloppy queries. *Page 47*

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■ Microsoft's Mail and Lotus' CC:Mail are top choices for companies standardizing on a PC-based mail system, but even they fall short when networks are large. *Page 57*

STELLA EVERSON

John H. Christoffel at Grossman's, Inc. *is placing decision-making tools in the hands of sales floor personnel.* **Page 39**

LARGE SYSTEMS

■ With its engineering budget limited, **Digital** is focusing Rdb database development on high-end production systems functions. *Page 65*

■ **The Jockey Club** switches from VM and OS/2 to Unix servers running Sybase. *Page 65*

APPLICATION DEVELOPMENT

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■ Overseeing technology deployment in a decentralized environment demands good coordination and a lot of diplomacy. *Page 75*

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■ Skill requirements are changing too quickly for conventional training to keep up. Embedded performance support may be the most practical and economical answer. *Page 81*

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COMMENTARY

■ Politics made a long-running sideshow out of the **Justice Department's** investigation of IBM, says editor in chief Bill Laberis. Let's not do it again with Microsoft. *Page 32*

■ Want to succeed as a CIO? Put those long-term planning documents in a bottom drawer, Akram Yosri advises. *Page 33*

■ Groupware is touted as a boon to productivity, Michael Schrage writes, but it's mostly used to compensate for downsizing. *Page 33*

■ The Internet isn't the national information highway of our dreams, Charles Babcock says, but it's a good starting point, as many businesses are starting to discover. *Page 35*

■ What **Novell** needs is a little competition in the network arena to teach it the importance of listening and responding to customers, according to David Coursey. *Page 60*

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Executive Briefing

Any delay between promise and reality is frustrating, but the intervals between unveilings of promising technology schemes and vendor follow-through do seem to be getting shorter. In many instances, vendors aren't just taking unilateral action; they're actually collaborating to make technologies more workable. For example, while early implementors of copper wiring for high-speed LANs are expressing frustration over compatibility problems and missing pieces, three vendors — Compaq, ITT Datacom and SysKonnect — have joined in an alliance they say will guarantee a 100% performance improvement. *Page 1*

In the E-mail arena, where gripes about administrative, management and diagnostic weaknesses are heard about even the most favored products *(page 57)*, **vendors are also putting their heads together to solve some of the most pressing problems for large corporate customers. The X.400 Applications Program Interface Association, an E-mail industry group consisting of Lotus, Microsoft and other E-mail vendors and users, promises to address incompatibilities in user directories and calendar applications that make large-scale integration of mail systems such a headache.** *Page 12*

Equipment makers and carriers with an interest in Asynchronous Transfer Mode (ATM) are moving with blazing speed (and a high degree of cooperation) to bring products, services and price points to a level where customers will feel comfortable making a commitment. Sprint activated a coast-to-coast ATM link earlier than expected, and a number of industry players are working together to blend ATM LANs and wide-area networks. *Page 8*

Vanity of the "not-invented-here" variety no longer has any place at Digital Equipment Corp., according to CEO Robert Palmer. This week the company proves it by dropping work on the DECmcc network management platform and announcing it will license IBM's NetView/6000 as the network management platform for Alpha AXP systems. *Page 7*. **A limited engineering budget is also forcing the company to focus development of its Rdb relational database more sharply. Instead of trying to stretch to appeal to departmental and workgroup buyers, the company will concentrate its efforts on functionality for high-end production systems.** *Page 65*

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CA plans to enter object fray

September beta version planned for CA-Visual Objects

By Thomas Hoffman
ORLANDO, FLA

Seeking a foothold in the Windows application development arena, Computer Associates International, Inc. last week said it will ship a beta-test version of its CA-Visual Objects package next month.

CA-Visual Objects, unveiled before the 1,000 application developers who attended CA's Technicon '93 conference here last week, is an object-oriented Windows application development suite. It is based on a set of next-generation application development technologies known as Aspen, which were obtained when CA acquired Nantucket Corp. last year [CW, June 15, 1992].

Since then, CA has added visual development tools, class libraries and SQL access to the product set. CA-Visual Objects also supports Microsoft Corp.'s Open Database Connectivity requirements and traditional Xbase databases, including CA-Clipper for DOS.

CA-Visual Objects is expected to compete primarily with Microsoft's Visual Basic for Windows and Powersoft Corp.'s PowerBuilder for Windows application development tool sets.

Windows appeal

The package should appeal to CA's 300,000 Clipper licensees and other mainframe software customers seeking to move older DOS and Cobol applications onto Windows platforms, according to Tina Foraker-Blackwell, a senior analyst at New Science Associates, Inc. in Westport, Conn.

However, she noted that CA will have a tough time wresting Visual Basic and PowerBuilder users away from Microsoft and Powersoft because Visual Objects is late to market compared with those well-established products.

CA-Visual Objects differs sharply from Visual Basic and PowerBuilder in several respects, according to John Faig, a senior research analyst at Meta Group, Inc. in Westport, Conn.

PowerBuilder is a fourth-generation language environment for use by large teams of programmers, while CA-Visual Objects, like Visual Basic, will be better-suited for smaller application development programming environments, such as those deployed by value-added resellers and small workgroups, Faig said.

In addition, CA-Visual Objects is a true object-oriented environment, unlike its competitors, Faig said. In addition, CA-Visual Objects includes both native code and P-code compilers for variable programming capabilities, a feature that has appealed to early Alpha-test users of the product. P-code, or pseudo-code, is non-machine-generated code.

"It's easier to code than Visual Basic," said Kevin J. Farley, director of software development at Rent Roll, Inc., a Dallas-based property management software developer that also uses the Microsoft package.

"It's like having the power of C++ without having to go through the complexities of using it," added Tad Frysinger, manager of information services at Colorado Commodities Management Corp. in Boulder, Colo.

Details sketchy

CA executives offered scant details about pricing and general availability for the product. However, analysts said the software should hit the market by mid-1994, priced competitively with Visual Basic and PowerBuilder. Those two products cost $495 and $1,495 for entry-level packages, respectively.

Marc Sokol, CA's director of product strategy, said the 1,200 planned beta-test shipments of CA-Visual Objects reflect CA's emphasis on the product as a cornerstone of its application development strategy.

"Visual Objects is to application development for CA what Unicenter is for systems management," said Sokol, referring to the vendor's two-year-long development of Unix and PC-based ports of its systems management package.

Client/server

OLE 2.0 hinges on Visual C++

By Michael Vizard and Melinda-Carol Ballou
BOSTON

Information systems managers looking to get a jump on client/server application development using Microsoft Corp.'s Object Linking and Embedding (OLE) 2.0 interface will have to rely on a 16-bit version of Microsoft's Visual C++ tool, which will offer full support for OLE later this year.

Source: Ovum Ltd., London

At present, OLE tools consist of standard character-based C languages, a time-consuming proposition; and a 16-bit implementation of Visual Basic, which supports only the creation of OLE containers for clients.

Developers looking to add OLE server support for their applications, which gives them the ability to launch and control another application, can look to the upcoming release of 16-bit Visual C++, said W. Quinn Curtis, Microsoft product manager for workgroup applications.

Last week, Microsoft launched the 32-bit version of C++ at the Software Development Conference but noted that OLE server support will not be added to the 32-bit version of Visual C++ until sometime next year. Microsoft offered no time frame for when server support will be added to Visual Basic.

C++ is the one

As a result, IS managers should begin thinking about bolstering their C++ development staffs because Visual C++ will be the tool that supports the building of OLE servers, added Denis Gilbert, Microsoft's general manager for the Visual C++ business unit.

Traditionally, Visual Basic has been used to create local Windows applications, which are then generally linked to databases using C or C++ calls. Moving this model out to client/server computing implies that developers will probably only require OLE container services for the Visual Basic applications, Gilbert said.

As part of that effort, Gilbert said Microsoft will focus on providing enhancements between applications written in Visual C++ and Microsoft applications.

However, the company said it has no plans to develop a version of Microsoft Office that would include Visual C++ similar to the Microsoft Office/Visual Basic edition currently offered.

Price is right

Microsoft Visual C++ 32-bit edition is priced at $599. For NT Software Developers Kit users or those upgrading from the Visual C++ Professional Edition, the product is priced at $99.

David Halpin, systems engineer at Computer Systems Co., a Brecksville, Ohio-based image systems house for the health care industry, said "16-bit applications just don't hack it" for the work he is doing.

While he is also investigating tools from Symantec Corp. and Borland International, Inc., the full OLE 2.0 support to be offered by Microsoft is likely to be a deciding factor for his company.

Meanwhile, Allan Wolff, programming special interest group coordinator for the Chicago Computer Society, said he has seen a noticeable increase in demand for C++ programmers, but he cautioned IS managers to question whether they would be better off doing complicated C++ programming in-house or outsourcing such projects to professional developers.

And even Visual Basic users are checking out the Visual C++ tools.

"We think [Visual Basic] 3.0 is fantastic, [but] we're also really playing with Visual C++ and using it for [Distributed Computing Environment] development," said C. David Marcillo, technical manager at Harvard University's office of financial systems. "We're definitely interested. And since it's all new development, we figure that we might as well go to 32-bit right away [when using the Visual C++ tools]."

Rivals respond

While Microsoft made its C++ pronouncements, rivals fired salvos of their own last week, including the following:

- Symantec said it began shipping its 32-bit C++ tools last week as expected [CW, Aug. 16]. Symantec C++ Professional is priced at $499. The upgrade price is $149.
- Borland, meanwhile, announced a "strategic direction" based on the company's Object Windows Library 2.0, which will begin shipping later this fall with Borland's C++ for Win32.

This is a multiplatform strategy for the company's tools to extend its compiler support for Windows and DOS to OS/2, Macintosh and Unix platforms. This support will be provided by third-party compiler companies. Pricing will be announced when the product ships.

—Melinda-Carol Ballou

Corrections

- Because of a reporting error, Spectrum Information Technologies, Inc. was misidentified in an article in the Aug. 23 issue.
- Because of a reporting error, Congress Financial Corp. of New York was misidentified in an item in the Aug. 16 issue.

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News Shorts

Novell slumps, prepares for new CEO

As expected, **Novell, Inc.** said its operating profits for the third fiscal quarter were down 6% from a year ago to $62 million [CW, Aug. 2]. Novell posted a loss for the quarter of $255.4 million, or 80 cents a share, compared with earnings of $66 million, or 21 cents a share, a year earlier. Revenue rose 12% in the period to $273 million from the year-ago period. Also, the Provo, Utah, firm paved the way for the succession of Chief Executive Officer Raymond J. Noorda, by appointing two senior executives to join him in an office of the president. Mary M. Burnside, executive vice president of operations, and James R. Tolonen, senior vice president and chief financial officer, will join Noorda.

GM subsidiary outsources to SMS

What is good for **General Motors Corp.** is not necessarily good for **Electronic Data Systems Corp.** A GM subsidiary, **Packard Hughes Interconnect**, has outsourced data center operations in a three-year contract to **Software Maintenance Specialists** (SMS) in Santa Ana, Calif. Packard Hughes makes electronic components and is transitioning from its traditional government market to the commercial sector. SMS said it will provide data center services for manufacturing operations, including customer order processing, inventory control and assembly line monitoring. It could not be learned whether GM subsidiary EDS bid on the contract.

Turner Broadcasting hires CIO

Turner Broadcasting System, Inc. in Atlanta has hired its first chief information officer: Elahe Hessamfar, who hails from the telecommunications industry. Her most recent post was vice president of information systems at Pacific Bell Directory. Hessamfar is the first IS executive to serve as a member of Turner's executive committee.

OSF announces DME pricing

Acknowledging delays in getting products shipped, the Open Software Foundation (OSF) last week announced a pricing schedule for its Distributed Management Environment (DME) distributed services package at Interop '93 August. The prices, which range from $25,000 to $250,000, are for systems vendors considering how to implement DME in their own products, the OSF said. DME's Distributed Services functions, scheduled to ship later this year, include print management, software distribution, license management and PC services.

Sybase repository to debut today

Sybase, Inc. intends to announce an application development repository today as part of an expected tools unification plan [CW, Aug. 16]. Two new object-oriented tools are also on the agenda, expanding on Sybase's recently acquired GainMomentum product, according to sources briefed by Sybase. EnterpriseMomentum was designed to build large-scale client/server software, while BuildMomentum is aimed at smaller departmental applications.

SHORT TAKES **IBM** announced a $1,095 software developer's kit for OSF's Distributed Computing Environment that supports the OS/2 operating system and Windows operating environment.... Last week, **Thinking Machines Corp.** in Cambridge, Mass., announced the resignation of President Harvey L. Weiss, who joined the company in June 1991.... **Legent Corp.** has agreed to acquire **Networx, Inc.**, a client/server problem management and trouble ticketing software vendor.

News shorts, *page 16*

ISSC catches eye of Justice Dept.

Assistant attorney general to hold antitrust meeting Sept. 14

By Mark Halper
WASHINGTON, D.C.

A long-standing charge that IBM's outsourcing business breaches antitrust rules has caught the interest of the U.S. Department of Justice's new antitrust chief.

Assistant Attorney General for Antitrust Anne Bingaman will meet on Sept. 14 with executives from outsourcer Affiliated Computer Systems, Inc. to discuss allegations against IBM's Integrated Systems Solutions Corp. (ISSC), according to Affiliated general counsel William Deckelman.

The meeting will mark the highest level of attention given to the matter by the Justice Department since Affiliated and other outsourcers claimed more than two years ago that ISSC violates a decades-old agreement between IBM and the department that restricts IBM's participation in the outsourcing business.

The Justice Department's action on the ISSC case could range from dismissing it to bringing criminal or civil charges. Some industry observers predicted the agency will not move against ISSC but will rewrite the 1956 agreement, known as the Consent Decree, to more accurately reflect a changed computer and business world. Still others questioned the timing of any move against what is one of the few bright spots in an otherwise bleak IBM financial picture.

At a glance
Anne Bingaman, who was named to head antitrust on June 17, is expected to take a more active role pursuing antitrust matters than did her predecessors in the Reagan and Bush administrations.

Unfair advantage?

The 1956 agreement addressed concerns that IBM could use its clout as a predominant hardware supplier to gain an unfair edge in what was then known as the service bureau business.

It required IBM to establish a separate subsidiary for service bureau work and expressly barred IBM from offering the subsidiary special pricing.

An ISSC spokesman last week reiterated ISSC's ongoing claim that it is in "complete compliance" with the decree.

A Justice Department spokeswoman said only that the department "is continuously monitoring the Consent Decree." She confirmed that Bingaman will participate in a meeting on the 14th but said, "I can't comment on the topic."

Executives from Sungard Data Systems, Inc., another concerned outsourcer, may also attend the Sept. 14 meeting, Deckelman said. Sungard did not return calls by press time.

The planned Sept. 14 meeting follows an Aug. 2 letter to Bingaman from U.S. Rep. John Bryant (D-Texas) that urged the Justice Department to resolve the matter. Bryant, a member of the House Judiciary Committee, criticized the department for "a larger, disturbing trend of inaction ... regarding certain antitrust matters." He further charged that the Justice Department's failure to make a decision has left smaller outsourcing companies in limbo trying to plan their business around an uncertain outcome to the investigation. He noted that Justice's foot-dragging "is seemingly denying these companies their due process."

In his letter, Bryant said several members of the committee had recently become aware of the Affiliated complaint.

Bryant could not be reached last week.

Competitor claims

Affiliated has asserted since 1991 that ISSC's use of IBM's sales force and its name, as well as its receipt of special IBM discounts, violates the Consent Decree.

And even if ISSC were a legitimate subsidiary, IBM is still benefiting from jobs it won before setting up the subsidiary, Affiliated said.

The investigation had stagnated at the staff attorney level until the Justice Department elevated it to the attention of Deputy Assistant Attorney General Mark Gidley a year ago [CW, Nov. 9, 1992].

But Gidley, a Republican, left with the change in administration, and the case soon bogged down again as President Clinton wrestled for months to win approval of a new attorney general.

FTC hands Microsoft probe to Justice

The Department of Justice's Antitrust Division will pick up where the Federal Trade Commission (FTC) left off in its antitrust investigation of Microsoft Corp.

The division acknowledged last week that it will launch a formal investigation under its new chief, Anne Bingaman, that will use all of the evidence submitted to the FTC.

Justice officials said they will make a concerted attempt to avoid duplication of the work already done by the FTC. The Justice Department requested and received clearance from the FTC, said Gina Talamona, a spokeswoman for the Office of Public Affairs for the Justice Department. She declined to say specifically what prompted her agency to begin its investigation.

"We have been granted clearance by the FTC and we are investigating the matter. We'll use all materials submitted by the FTC to avoid duplicating in an attempt to conclude this matter as soon as possible," Talamona said.

Talamona also refused to say in which area the agency will be investigating Microsoft, which has been accused of unfairly leveraging its various product technologies and marketing practices.

> The Department of Justice announced this week that it will continue the Microsoft antitrust investigation where the FTC left off

The decision by the Justice Department came within hours of the FTC's announcement that it was closing its 30-month investigation of Microsoft without taking any action.

In a tersely worded statement, the FTC said it has decided that "no further action is warranted." However, it cautioned that this action should not be "construed as a determination that a violation may not have occurred" and that it is reserving the right to take further action "as the public interest may require."

Microsoft officials could not be reached as of press time. —*Ed Scannell*

DEC swaps DECmcc for NetView

By Craig Stedman
SAN FRANCISCO

Digital Equipment Corp. last week confirmed that it will stop work on its DECmcc network manager and license IBM's NetView/6000 software as the network management platform for Alpha AXP systems.

The decision to drop DECmcc is part of a continuing process of weeding out engineering projects that are not paying off. Digital cut engineering spending by 13% in fiscal 1993 and has been casting a stern eye at what Robert Palmer, its president and chief executive officer, calls "vanity projects."

Rose Ann Giordano, Digital's vice president of production systems software, acknowledged that the reductions and Palmer's demand that internal projects have built-in market potential helped prompt the move to NetView/6000.

She added that the licensing deal with IBM [CW, Aug. 23] is aimed at giving Digital access to a larger base of network management applications than it was able to muster for DECmcc, which supports the company's VAX computers and its hardware based on Mips Computer Systems, Inc. microprocessors.

Only 60 applications are available with DECmcc, according to Digital. That compares with 170 packages for Hewlett-Packard Co.'s OpenView product, which beat DECmcc for inclusion in the Open Software Foundation's (OSF) Distributed Management Environment (DME) and is the base technology for NetView/6000.

"There's dollars in volume," Giordano said. "It just makes a much, much better economic case" to write applications for NetView/6000 and other OpenView derivatives than for DECmcc, she added.

Not a long-term move

Chris Christiansen, an analyst at International Data Corp., said it would have taken "a massive investment" for Digital to add DME compliance to DECmcc and to catch up to IBM and HP in functionality. "It's clear Palmer doesn't want to make that kind of strategic investment," Christiansen noted. "He's more interested in the next quarter than the next millenium at this point."

Reaction among Digital users was mixed. "I'm a bit surprised Digital went in this direction because that was one of the technologies they were pushing pretty heavily," said Ed Homko, systems manager at Dr Pepper Co./The Seven-Up Co. in Dallas. His company has been looking at using DECmcc, "but obviously that's up for question" now, he added.

However, Frank Brake, director of international operations for technology business development at Newport News Shipbuilding and Drydock Co. in Newport News, Va., said he had been urging IBM and Digital to work together even though he is a DECmcc user with VAX systems in place.

A single network management platform for Digital and IBM hardware "is exactly where we want to go," Brake said. The shipbuilder can do that today "to a certain extent" using AT&T's Accumaster Integrator software, "but it's a shotgun marriage as opposed to the romantic relationship we'd like to see."

George Kerns, assistant vice president for cellular information management operations at GTE Telecommunications Products and Services in Atlanta, said he also had recommended that Digital leverage more outside software technology. "This is good news from the perspective of DEC kind of breaking the old mind-set that they had to invent everything themselves," he noted.

Digital will market NetView/6000 under the name Polycenter NetView and will continue to develop its Polycenter applications for use with the IBM platform, Giordano said. A NetView/6000 release for the DEC OSF/1 operating system is due in the first quarter of 1994 and will be followed by versions for Microsoft Corp.'s Windows NT and OpenVMS.

The porting work is being done jointly at IBM's Networking Systems facility in Raleigh, N.C., and the firms said future NetView/6000 and Polycenter NetView products will be developed from a single code base and released at the same time.

DASD in Minutes...

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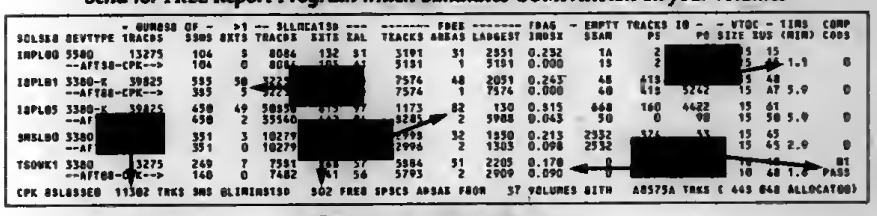

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Vendors, carrier make ATM moves

By Joanie M. Wexler
SAN FRANCISCO

To ensure that the momentum behind Asynchronous Transfer Mode (ATM) does not falter, carriers and local-area network switch providers alike put the pedal to the metal with the emerging high-speed technology at last week's Interop '93 August trade show here.

Progress took the form of an earlier-than-expected nationwide service rollout from Sprint Corp., the addition of liberating wide-area links to ATM LAN switches and alliances between equipment makers and carriers for blending ATM LANs and wide-area networks into one superfast network infrastructure.

Along with Sprint, the wide-ranging moves involved industry players such as Fore Systems, Inc., Digital Link, Inc., Network Equipment Technologies, Inc. (NET), 3Com Corp. and WilTel. The unprecedented headway with a new network technology, which also included further LAN-side price cutting and new adapter cards, is instilling confidence in some ATM-bound users that the technology is more than vaporware.

For example, Hughes Aircraft Co. has already signed on to Sprint's ATM service and is testing a 1,000-user pilot from California to Virginia to determine traffic patterns and price/performance ratios.

Bob Emmett, manager of network architectures, said Hughes has "no particular killer application" and is instead relying on ATM to serve the array of its internetworked application needs.

"People aren't putting in ATM because it saves them money. They're doing it because it allows them to change what they do in their businesses," said Mark Juliano, vice president of marketing at Fore Systems in Pittsburgh.

Meanwhile, Stanford University is trying to extend its local ATM network nationwide. Stanford is a user of NET's heretofore local ATM switch, which last week gained T3 and Synchronous Optical Network wide-area interfaces.

Stanford is educating students at corporations who are trying to remotely earn master's degrees in electrical engineering, said Dale Harris, director of the Palo Alto, Calif., institution's center for telecommunications.

Stanford is hooked to a Sprint metropolitan-area ATM trial network today and sees public ATM service as the way to reach the scattered groups of users who could not be served on a private line network because of cost and complexity.

The Sprint ATM service — six months ahead of schedule and available now — lets users choose the type of billing structure, service and speed needed on a per-location basis.

Sprint offers per-site variable-bit rate ATM, better-suited for data-heavy applications, or constant-bit rate service, which is more attuned to delay-sensitive voice and videoconferencing traffic.

Sprint, meanwhile, has partnered with Fore Systems and Digital Link to sell end-to-end ATM networks. Fore Systems has also struck a deal with 3Com aimed at blending the routed LAN world with the ATM switched world and integrating 3Com's other network components into the ATM fray.

Fore Systems also dropped the price of its Sun Microsystems, Inc. Sbus workstation adapter from $1,995 to $1,295. The price tag rivals those for 100M bit/sec. Fiber Distributed Data Interface (FDDI) LAN adapters over copper wiring, and the cost for fiber-based FDDI cards remains several thousand dollars.

Bye, bye T3?

In WANs, ATM price points are being set to blow T3 service offerings away. A coast-to-coast Sprint ATM link from Washington, D.C., to Los Angeles at T3 (45M bit/sec.) speeds would cost $40,000 to $50,000 per month, not including local access charges at each end. Sprint estimated this to be 20% to 30% cheaper than its standard T3 offering.

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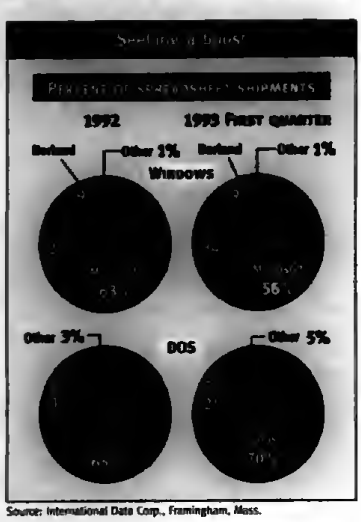
Borland slashes prices

CONTINUED FROM PAGE 1

for Windows 4.0, which was launched two months ago. Thus far, many of Borland's Windows market sales have come from customers switching from 1-2-3 on DOS to Quattro Pro for Windows.

For Borland to be successful, it will have to radically increase sales volume by expanding its distribution channels in pursuit of new spreadsheet customers. The current version of Quattro Pro sells for $99, which means Borland will have to sell two copies of Quattro Pro 5.0 to make up the difference.

"Don't be surprised to see us selling Quattro Pro at places like Safeway," Kahn said.



Source: International Data Corp., Framingham, Mass.

New accounts

In addition to expanding its sales channels, Borland will also have to rally customers disenchanted with Microsoft and Lotus to its cause.

For example, Garber Travel Services, Inc. in Boston switched from 1-2-3 on DOS to Quattro Pro for Windows about three months ago, said Rock Blanco, vice president of information systems. He said he is disappointed with Lotus' service and the performance of 1-2-3 on networks. At the same time, Blanco said he is disinclined to purchase Microsoft applications because he believes Microsoft's strategy deliberately pushes customers into buying Microsoft products.

The Borland initiative essentially extends the volume discounts that have been enjoyed by large customers down to the masses, analysts said.

"Borland has essentially pulled the veil off volume discounts. People shouldn't be deceived into thinking that Borland is the only company selling software at these prices," said Drew Brosseau, a principal at Cowen & Co. in Boston.

"It's all about elasticity of demand. Borland is betting that it can get customers to switch while also expanding the market. From there, they will try to live off the upgrades," he added.

Hard act to follow

Yet another challenge facing Borland, however, is that it is difficult to raise street prices after an extended promotional offering. And if Borland fails to expand its customer base through this latest pricing initiative, the company's stock may fall enough to make it an easy target for a takeover, Brosseau said.

"There's a lot of skepticism about Borland on Wall Street. People were excited about it a few years ago and then lost faith. This is a gamble to kick-start its spreadsheet business and regain that lost faith," Brosseau said.

As part of that gamble, Borland will also have to calculate damages assessed under a recent judgment made against it in the copyright infringement case with Lotus [CW, Aug. 23]. Lotus is expected to seek $100 million in damages, but industry analysts predicted damages would probably not exceed $30 million (see story below).

For its part, Borland said it is confident it will win its appeal before the damages hearing in October. As such, the company has no plans to set aside any reserves to cover potential damages, a company spokesman said.

In the meantime, Borland will spend the next nine months focusing on increasing sales volume, which it hopes will generate enough income to cover all of its future expenses.

Down but not out

Borland customers appear to be keeping the faith. "The Lotus suit may hurt them, but it won't drive them out of business. I'm comfortable that Borland has the staying power to stay in the market," said Frank Austin, president of an independent consulting firm in Houston.

Kahn said last week that the unfavorable court ruling could not have come at better time because Borland was already in the process of launching a new version of Quattro Pro. He said Borland has a relatively small number of Quattro Pro units in the channel; copies already installed are unaffected by the suit.

"We won't have to take any charges because the software that is in the channel has already been accounted for as part of the new product launch," Kahn said.

"We're not changing anything in terms of visibility on the next quarter, and earnings will be in line with previous quarters," Kahn added.

Lotus seeks $100M; may have to settle for less

It is unlikely Lotus will be able to extract the $100 million in damages it is widely expected to seek from Borland as a result of its copyright infringement suit, analysts said, citing previous decisions in this type of case.

Instead, analysts have speculated, damages could run as high as $30 million.

The court will have to first calculate what percentage of Borland's Quattro Pro spreadsheet sales during the last several years infringed on technology owned by Lotus. Then, it will have to estimate how much profit Lotus lost as a result of those sales.

In addition, the court will have to determine what percentage of Borland's sales were won by beating Lotus head-to-head; how many customers purchased Quattro Pro to take advantage of the specific features mentioned in the suit; and whether damages are going to be based on how much profit Borland made or how much profit Lotus lost.

"If you assume Borland has cumulative revenues of $300 million for Quattro Pro, the damages will probably be below $30 million, maybe even $10 million," said Drew Brosseau, a principal at Cowen & Co. in Boston.

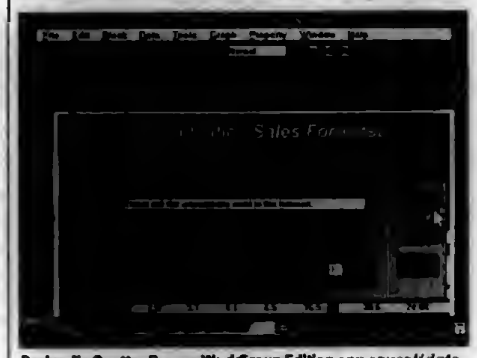
—Michael Vizard

Quattro Pro 5.0 for workgroups launched

By Michael Vizard
SCOTTSVALLEY, CALIF

In addition to launching a $50 stand-alone edition of its Quattro Pro spreadsheet this week, Borland International, Inc. will unveil a WorkGroup Edition designed to provide a groupware approach that does not require information systems managers to adopt a separate set of middleware services.

Priced at $99.95 through Jan. 15 ($495.95 afterward) and based on the forthcoming Quattro Pro 5.0 for Windows spreadsheet, the WorkGroup Edition incorporates Borland's long-awaited Object Exchange (Obex) technology directly into the application, which then allows users to share spreadsheet data across electronic-mail and network transport services.


Borland's Quattro Pro 5.0 WorkGroup Edition *can consolidate 150 worksheets from various offices into one*

As a thin layer of object technology built directly into an application, Obex was designed to let users encapsulate a piece of data and then send a message to other users alerting them that this data is available. Once alerted, users then log in and have that data automatically incorporated into Quattro Pro.

"The WorkGroup Edition allows us to create a group strategy without having to make a huge financial commitment," said Ezra Davidson, manager of IS at the Brown Organization, a privately held Los Angeles firm that owns several radio stations.

In contrast, Davidson said other groupware offerings require users to deploy and maintain a separate software package, such as Notes, to provide a set of middleware services.

Bringing remote offices closer

Garber Travel Services, Inc. in Boston intends to deploy the WorkGroup Edition to help link all of its remote offices. "I can use the Notebook feature in the WorkGroup Edition to roll up 150 worksheets from different offices into one worksheet," said Rock Blanco, Garber vice president of IS.

In addition, Blanco noted that support for SQL will allow him to deploy Quattro Pro as a front end to SQL databases. Other features include the ability to deploy custom configurations from a single server.

Borland's workgroup strategy calls for supporting Obex as a tool for integrating applications. For example, Obex will be included in a forthcoming version of Borland's Paradox for Windows database.

However, whether Borland has enough clout to garner industry support for Obex, which currently does not provide the range of services available in groupware environments such as Notes, remains to be seen.

For example, WordPerfect Corp. Vice President of Technology Dave Moon said his company is currently evaluating Obex but has made no specific commitments.

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Users want unified mail directories

Products demonstrated at Interop ease synchronization headache

By Lynda Radosevich
SAN FRANCISCO

Hearing the frustrated cry from large electronic-mail sites, vendors are stepping up efforts to address managers' biggest headache: synchronizing incompatible directories from many different systems. The idea is to allow end users to access E-mail addresses from users on different systems directly from their native systems.

The problem behind directory synchronization stems from the different addressing conventions E-mail vendors use. When information systems managers create a master names and address directory, they must translate the addresses to the different formats or create homegrown software to do so.

DunsNet's Allan Conner: *Setting up global directory not easy*

"One of our primary goals in setting up enterprisewide E-mail is setting up a global directory, and that won't be easy because it requires cooperation and coordination by the different entities at Dun & Bradstreet, each with independent mail systems," said Allan Conner, president of DunsNet, a Dun & Bradstreet Corp. company that provides network services to the corporation's divisions.

Initially, the messaging industry thought it would solve the directory problem by having all vendors comply with the X.500 standard. However, "X.500 hasn't come on board fast enough, and the systems have grown up differently," said Thomas Tansy, a partner at Tansy Associates, a technology consultancy in Santa Cruz, Calif.

Therefore, efforts from independent directory synchronization vendors with no stake in particular E-mail or network operating systems are important to the effort to solve directory problems, he said.

At the Interop '93 August conference last week, several announcements and demonstrations were offered to help ease the difficult synchronization task, including the following:

- The X.400 API Association agreed to work on delivering directory interoperability guidelines (see story below left).
- SoftSwitch, Inc., an E-mail integration company in Wayne, Pa., launched a consulting group that will help firms manage the directory integration process.
- Hitachi Computer Products, Inc. announced Mosaic Works, software that will synchronize directories from the major E-mail systems. It will ship in October. Mosaic Works uses a "rules engine" to convert address formats to a standard format. The addresses are stored in a master database, then propagated to local-area networks. An agent at the LAN converts the addresses back to the native format and updates the local E-mail directories. It operates on the Simple Mail Transfer Protocol messaging protocol using a directory synchronization method published by Retix.

The Hitachi software runs on the Sun Microsystems, Inc. Scalable Processor Architecture Unix platform or an X.400 platform from Hitachi and integrates directories across most Unix, Macintosh and PC-based LANs. The directory server software costs $2,495 and supports 1,500 addresses. Individual agents cost $995.

To help companies with planning and longer-term strategy, SoftSwitch created a consulting service called Directory Xpress. The service helps users prepare addressing conventions and migrate to X.500 standards-based directory protocols, a level of help not included in the traditional installation services, said Ron Kopeck, vice president of marketing at SoftSwitch.

Vendors align on mail API

By Lynda Radosevich
SAN FRANCISCO

■ Every cloud has its silver lining, and one outcome of the so-called "API wars" between Lotus Development Corp. and Microsoft Corp. camps is said to be increasing signs of cooperation.

Evidence of this emerged last week when an electronic-mail industry association composed of Lotus, Microsoft and other E-mail vendors and users decided to move forward to make E-mail applications interoperate.

The X.400 Applications Program Interface Association (XAPIA) voted at Interop '93 August to develop calendaring application programming interfaces (API). The APIs would allow calendar programs from different vendors to exchange information using E-mail and let applications work with multiple calendaring systems.

Additionally, the XAPIA decided to deliver within one year tools that will help vendors make their E-mail directories compatible. Here, speed rather than thoroughness is the essence, an XAPIA spokesperson said.

To encourage end-user and small business participation in developing these APIs, the XAPIA introduced a new category of associate membership that costs $2,000 per year rather than the usual $5,000. Associate members can participate in technical committees but cannot vote.

"I'm generally a pessimist when it comes to these arrangements, but things have changed since the VIM/MAPI wars," said Pete Donaghy, manager of enterprise information systems at Hughes Aircraft Co. "Users learned that we have to be involved. . . . Vendors learned that API wars didn't do anyone any good and confused the industry."

Alliance

CONTINUED FROM PAGE 1

ferent elements of a LAN infrastructure, said they plan to build stable physical-layer-level network platforms out of Compaq servers and workstations, SysKonnect copper Fiber Distributed Data Interface (FDDI) adapters and concentrators and ITT Datacom cabling. The clincher is that the alliance will guarantee 100% interoperability.

Alliances such as these are needed because the technologies are immature, making for "a fairly messy job," said Kenneth M. Hays, network technical coordinator at Florida State University in Tallahassee.

"The bottom line is you have to be far enough along in your education or go to someone you can pay to make this stuff work," he said. "Just because you can plug [a network adapter] into an EISA bus doesn't mean it will necessarily work under DOS, Windows or NT."

The issue parallels the state of the industry two years ago when 10M bit/sec. Ethernet over unshielded copper (10Base-T) emerged. At the time, Houston-based Texas Commerce Bank had to turn to an alliance of Compaq, Novell, Inc. and ViewStar, Inc. to guarantee the interoperability of its 10Base-T platform for running a new imaging application.

To get these technologies up and running, many users must initially turn to the vendors to figure out the impact of "all these different pieces of equipment banging into each other and figuring out whose fault it is when the thing crashes," said Allen Cournyer, senior vice president of retail technology and operations at Texas Commerce.

"I'm originally from the glass house; we were pioneers [with 10Base-T] and we would not have succeeded without this coalition-like strategy," Cournyer said.

Watching for details

Part of the justification behind offering what the three vendors call a near-bulletproof platform for new communications technologies is that the standards for getting very high-speed networking rates to run over error-prone unshielded copper leaves no room for error.

In fact, "there isn't even an official standard in place yet for 16M bit/sec. Token Ring," Kevin Johnson, ITT Datacom's director of North American operations, pointed out. That is because getting those speeds — which are far slower than the 100M bit/sec. speeds of FDDI and fast Ethernet — to run over unshielded copper is no simple feat, he said.

The idea behind the alliance is to preclude users from worrying about device driver compatibility with a given server or figuring out how to set up the right network parameters as they create applications requiring the speeds and features of FDDI, fast Ethernet and Asynchronous Transfer Mode.

An Interop attendee who asked not to be identified said he prefers a vendor alliance for such platform tweaking to services from value-added resellers. "I'd prefer these engineers who know their technology to sales guys who just say, 'I'll get back to you.'"

On the other hand, Matt Jacoby, a senior network analyst at Norwest Mortgage, Inc. in Minneapolis, said having to choose allied vendors' products is too constraining. "We've been going through a project to replace our Compaq servers with Tricord superservers," he said. "And wiring would be a big concern because we generally get it from a number of different sources."

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Novell, SynOptics team up

Firms to bring ATM services to routed NetWare internetworks

By Joanie M. Wexler
SAN FRANCISCO

Two local-area network bigwigs teamed up last week with plans to eventually blend the "smart" services on today's router-based LAN internetworks with the fast switching technologies slated to carry the next generation of distributed applications. Users may cheer, but some observers question why the two companies are attempting such a project outside a parallel standards effort.

Novell, Inc. is working with SynOptics Communications, Inc. to tightly integrate Novell's IPX networking protocol and other NetWare operating system services such as routing with the latter's Asynchronous Transfer Mode (ATM) switch.

Such an effort would bring the benefits of ATM transport to the broad population of NetWare users on an internetwork, Novell officials said. These include allowing individual network nodes to "virtually" belong to LANs, meaning network administrators can reassign them to different LANs via software control as traffic patterns and work projects warrant.

Unlike routed networks, ATM operates at the physical network layers and is independent of higher-layer protocols, such as IPX, which today find their way to their destinations when a router reads an address within the IPX packet. However, leaving routing in place on top of ATM would allow NetWare servers embedded in SynOptics hubs and switches to determine the best path to take through an internetwork, explained Doug Laird, product line manager for Novell's Internetworking Products Division.

"This would help us cut down on the management required for new switching hubs," said Mel Lively, network manager at Presbyterian Healthcare Systems in Dallas, a pure Novell and SynOptics shop. "Today, NetWare and SynOptics environments are managed separately."

Protocol puzzle

But the isolated effort to interface ATM to IPX has bewildered some observers, who wonder why the companies would undertake the task apart from the work in progress at the ATM Forum for interfacing all upper-layer protocols — including IPX — to ATM.

The ATM Forum expects to have specifications completed for three protocols, including IPX, this year. The various ATM switch vendors all have proprietary ways of interfacing to ATM.

Novell implied that its work would merely tighten the interoperability ties between SynOptics switches and NetWare. George Powers, a Novell director of product development, said the companies would publish an IPX-to-ATM interface "based on ATM Forum specifications."

Meanwhile, Novell and SynOptics have scheduled some technology stepping-stones to take them to their ultimate ATM/IPX goal. Novell servers will be integrated first into SynOptics hubs, allowing all Novell NetWare Loadable Modules to run off the SynOptics hardware platform. Novell has the same relationship with hub vendor Networth, Inc., an Ungermann-Bass, Inc.-owned company.

That first effort took shape last week in the form of the $5,000 to $8,000 LattisEngine 486, basically a NetWare PC server that can be plugged into a SynOptics smart wiring hub and slated to ship in the fourth quarter.

The next rendition of NetWare, due in late 1994, will take advantage of SynOptics switching technology, Novell said. In June, SynOptics introduced ATM-like (but slower) hub modules for today's packet-based LANs.

In the works

With partner SynOptics' ATM assistance, Novell intends to prime IPX and NetWare for ATM with the following moves:

- Its MultiProtocol Router will support ATM interfaces and connect separate "virtual" LANs.
- It will enhance its NetWare Link State Protocol routing algorithm to establish ATM circuits over the shortest path possible.
- It will extend its IPX application programming interface so that IPX is smart enough to know when ATM is underneath and to take advantage of ATM services, such as reserved bandwidth and predictable latency.

Early users laud AppBuilder

CONTINUED FROM PAGE 1

for specific functions, such as accessing a database or sending data over a network.

The user creates an application by calling these modules up as icons and using the mouse to arrange and connect them into a series of routines that make up a program.

Voice of user

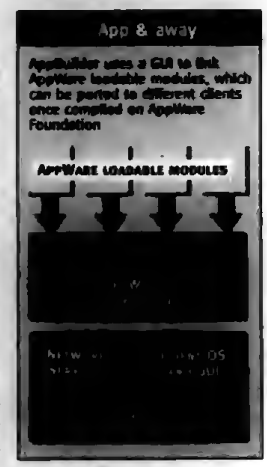
Mobil Environmental and Health Services Laboratory has been using the original Serius product for about a year as a quick way to develop applications through which Macintoshes can access databases on Digital Equipment Corp. VAXs.

"At the time [of purchase], TGS Systems' Prograph was the only other choice, and it didn't do the database part," said Lisa Vaz, manager of application development at the laboratory. She was at the Interop '93 August show here last week.

AppBuilder is "well put together," and its graphical development environment is unique, Vaz said. "None of us had experience in Macintosh development, and we had no time to mess around" with learning the new environment, she added.

The laboratory used AppBuilder primarily to put together a system that talks to Rdb on the VAX, tracks purchases and prints out purchase orders. "It involved a lot of communication back and forth" between the Macintosh and the VAX, Vaz said. It took her about a year to complete the project.

While AppBuilder definitely made their lives easier, the laboratory's developers found that programming with the product was not as simple as it seemed



from demonstrations, "where you just connect a lot of little boxes," Vaz said. "A simple application is easy; with a complex application, you run into the same problems you get with other [developers'] products."

While the boxes "encapsulate you from low-level details," such as how to set up host links, the programmer "still needs to worry about error-handling and flow-control issues and do debugging to ensure that all of the pieces interoperate in a large-scale environment, [so] you don't have things like infinite loops," Vaz explained.

"If you're a regular programmer, you should be able to understand the loops and subroutines," said Mitch Miller, director of technology at Collegeview, a Cincinnati software company. "What's special is the objects; you don't have to do special code for things like a database or screen manipulation."

Miller said he was able to create a "pretty good database in a couple of hours, realizing a minimum 50% savings in programming time."

Collegeview began using the Serius precursor to AppBuilder last fall to develop a multimedia application that allows high school students to search for colleges that match their requirements and then get audio-visual presentations of the institutions they are interested in.

Overall, users said they are pleased with what Novell is doing with AppBuilder. Vaz said she had noticed that new function modules have been introduced faster since the acquisition.

For example, a report-generation box is coming along soon; Serius had promised it for almost a year, she said.

A key advantage that Serius provided with AppBuilder and that Novell is extending is portability across a variety of client systems. AppBuilder supports Windows and Macintosh platforms now; once it is compiled on Foundation Manager, it will support Unix and OS/2 next year.

Novell is in the process of porting Visual AppBuilder to Foundation Manager, another AppWare offering that compiles code so that it automatically runs across a variety of desktop environments. This saves the user from having to learn how to program each time a move is made to a new system, said Kevin Mooney, a manager of business development at Novell.

However, it will take Novell some time to port all of the key objects across all of the platforms, Miller warned. "On the Windows side, they have a strong database object" that Novell is just now porting to the Macintosh, he said. "And we want to make sure they don't forget to enhance the Windows side with the Mac multimedia object."

Novell is also working on extending AppBuilder into networked client/server systems, Mooney said. This will mean that applications built with the offering will be able to automatically access NetWare services using protocols such as AppleTalk and Transmission Control Protocol/Internet Protocol.

Miller said he was looking forward to being able to build "true distributed services," such as using the NetWare server to deliver multimedia information out to client workstations.

Novell pressure?

However, Vaz expressed some nervousness that Novell will try to pressure AppBuilder users to adopt NetWare.

"I want more strong promises from Novell that my [non-NetWare] environment will stay acceptable. I accept that some new features will arrive on NetWare only; I just don't want to lose what I've got," she said.

One key missing piece that Miller is eagerly awaiting is AppBuilder Application Loadable Modules (ALM) based on popular software packages such as Lotus Development Corp.'s 1-2-3 and Microsoft Corp.'s Excel. ALMs are the software building blocks within AppBuilder.

Novell is talking with major application vendors and will announce alliances to bring their products into AppWare at the Networld '93 show in October, Novell senior manager Ed Firmage said. Novell is also adding ALMs in areas such as telephony, document industry, device control and report generation.

One last advantage Novell will bring to the AppBuilder table is price, which will be set when the Novell product ships in October. The original Serius price was about $1,500; the new one will be "way down" from that, according to Firmage.

Modular AIX tailored to needs

CONTINUED FROM PAGE 1

Cal Killen, director of AIX development at IBM's Advanced Workstation & Systems Division here. He did not give specifics.

Compared with AIX Classic, AIX Lite will have fewer system utilities and will not have multiuser support, he said.

Pieces of the revamped AIX will be introduced over time, along with new PowerPC processors, Killen noted. "It's not one big unveiling," he said. "The hardware drives it, so within a year and half it will all be unveiled."

The staged rollout of PowerPC systems will begin later this year and extend through 1994.

Scalable AIX will make it possible to tailor versions of the "classic" AIX 3.X code to specific business applications (see chart). For example, AIX Lite will be used for laptop or desktop computers, while Classic AIX will target midrange machines, and Cluster AIX will run on high-end systems.

Desktop AIX users will also find installation and memory requirements greatly reduced. Still, "You wouldn't be able to run AIX Classic in less than 16M bytes [of random-access memory]," Killen said. "We're going to drive that down so that our desktop boxes can run in less than that, maybe even 8M bytes."

Smart move

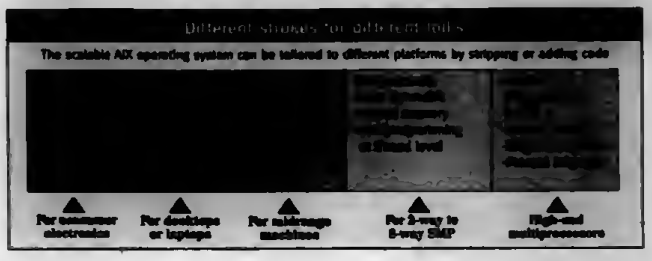
Industry analysts said the AIX move is pragmatic, given the wide range of computers that will run on the PowerPC architecture, which is being developed by IBM and Apple Computer, Inc. "I think IBM is trying to respond to the reality that its product is no longer monolithic," said Gartner Group, Inc. Unix analyst Paul McGuckin. AIX "is not just for [use with] a technical workstation anymore."

Users said they are pleased with the plan because the current AIX 3.X can take four or more hours to install. IBM addressed installation and updating problems in the release of AIX 3.2.4 last month [CW, July 19]. However, many users said they simply do not need all the extras, such as administrative support and support for Kanji characters used in the Japanese language, in AIX 3.0.

"When we get the machine, and it's preloaded, it has just about everything on it," said Bob Maggard, a technical analyst at Continental Health Care, Inc., a health care software firm in Overland Park, Kan., with two RS/6000s. Continental Health also maintains many of the 50 RS/6000s at its customer sites, he said. "Anything that could make some of the code optional would be good."

The AIX Lite version will suit desktop applications, users said. "I think it does make some sense, especially in the PC market, where you're trying to give the user something that's manageable and that installs and runs as easily as Windows," said Tony Scott, vice president of software development at VideoCart, Inc. in Chicago. His firm uses 12 IBM RS/6000s to track 20,000 supermarket-cart displays in 200 stores.

Pricing concerns may also play a role in IBM's Scalable AIX plans, some users said. "It would allow them to have products priced at different points in the market," said Richard Lester, vice president of information services at Associated Grocers, Inc., a $1.2 billion supermarket cooperative with eight RS/6000s.



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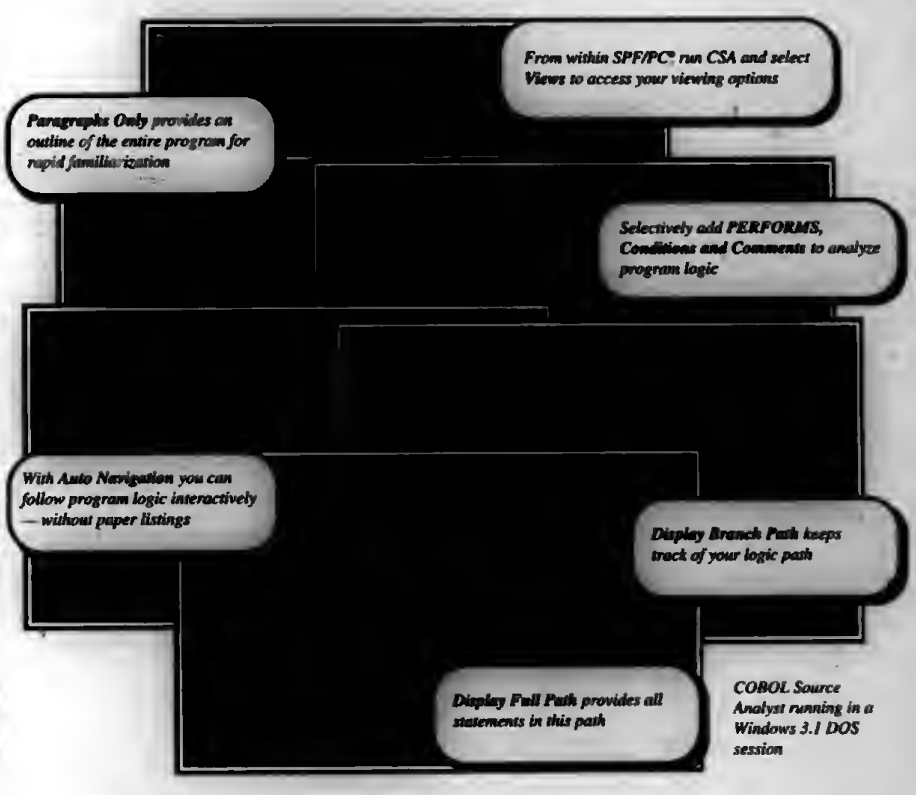

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News Shorts

Computer makers battle export controls

U.S. computer makers got half a loaf last week from the U.S. Department of Commerce, which said it will free computers rated below 67 million theoretical operations per second (MTOPS) from most export controls. That is up from the old limit of 12.5 MTOPS. However, 67 MTOPS is approximately the power of an Intel Corp. Pentium processor or a Sun Microsystems, Inc. Scalable Processor Architecture chip. Disappointed industry groups had asked for a much higher threshold, saying that outdated regulations intended to keep computer power out of the hands of unfriendly forces cost billions of dollars in lost sales while contributing nothing to national security (CW, Aug. 23).

IBM consolidates Big Iron development

IBM is finishing up the consolidation of its mainframe hardware development facilities in upstate New York, a spokesman confirmed last week. By the end of next month, it will move 450 engineers, programmers and other developers from Kingston to Poughkeepsie; some 200 people have already moved. As of July 30, there were some 2,800 people left in the Kingston facilities, compared with last year's total of 4,200.

Intel buys into videoconferencing

Intel Corp. and VTEL Corp. said last week that they will develop a compatible family of videoconferencing products. The terms of a cross-license agreement call for VTEL to bring Intel's PC video technology into its desktop, conference room and multipoint videoconferencing line. As part of the arrangement, Intel will purchase 10% of VTEL's outstanding stock for approximately $7 million and retain the right to use VTEL technology in future Intel products.

IBM/Sun agree on interface

Sun's SunSelect business unit and IBM said last week they have agreed to trade technology to implement Sun's Windows Application Binary Interface (WABI) for Windows programs. The two firms reached a cross-licensing agreement, under which IBM will use WABI on its RISC System/6000 workstations and Sun will gain unspecified IBM technology to enhance WABI's functionality and performance. No pricing or availability information about the IBM WABI software was given.

Amdahl restructures operations

Amdahl Corp. said last week it was reorganizing the $2.5 billion firm into five business units that are responsible for profits — and the development and manufacture of various product lines. At the same time, the mainframe maker announced a shuffling of executives to head up the business units. Chief Executive Officer Joseph Zemke said the moves were to make Amdahl executives more accountable for profits.

SHORT TAKES Borden, Inc. last week outsourced its Columbus, Ohio, data center to The Genix Group in a five-year contract worth $12 million.... IBM said last week that Heinz Fridrich, vice president of manufacturing, will retire on Sept. 30. He will be succeeded by Jean-Pierre Briant, formerly at IBM's Technology Products Division.... Concurrent Computer Corp. Chairman and CEO Denis R. Brown has retired "for personal reasons," the firm said last week. John Stihl, Concurrent president, will assume Brown's duties.... Intel last week announced it has signed a pact with Pacific Bell to explore the integration of audio, data and video applications on PCs.... X/Open Co. will orchestrate next week an agreement between some 50 Unix hardware and software vendors to cooperate on an application development interface.

DEC PC push to take low-cost turn

Additions aimed at indirect channels

By Craig Stedman
MAYNARD, MASS.

Digital Equipment Corp. plans this week, for the first time in a year, to update its desktop PC line. The company will roll out nine lower-priced Intel Corp. i486-based models designed to move Digital into the indirect channels it needs to expand its market share.

Digital is cutting the base price for a 486SX-based DECpc LP system with a noninterlaced Super VGA monitor from $1,649 to $1,448 to get back on the same pricing curve as other PC firms. Users and analysts said it fell down on pricing during the last 12 months.

"We'd like to use DEC PCs, but they just haven't been price-competitive, and they've been stale for a while," said a Digital customer at a major bank, who asked not to be identified.

Children's Hospital of Eastern Ontario in Ottawa considered both the DECpc LP line and Hewlett-Packard Co.'s PCs for a pending 45-system order but selected HP for an initial trial purchase because of lower pricing, said Andre Hallam, a senior analyst at the hospital.

However, the situation could be revisited once the new DECpc LPV and LPX machines are available. "If they come out with a better price, they might still be in the running," he added.

The three-slot LPV models are direct LP replacements with faster local bus graphics. Digital said; five are being offered, from a 25-MHz i486SX-based unit to one using the 66-MHz i486DX2. The four LPX machines are new six-slot models with more graphics options and support for upgrades to Pentium OverDrive processors; they start with the 33-MHz 486SX and go up to the 66-MHz DX2.

Starting prices range from $1,049 to $1,799 on the LPV without a monitor and from $1,299 to $1,949 on the LPX. Both include 4M bytes of memory, a 170M-byte disk drive, S3, Inc.'s 805 local bus video card, Windows 3.1, DOS 6.0 and a three-year warranty. Monitor prices start at $299 for a 14-in. interlaced Super VGA unit.

The new line "gets them back in the hunt," said Neal Hill, an analyst at Forrester Research, Inc. in Cambridge, Mass. He and others added, though, that Digital needs to expand its limited presence in indirect channels to meet an internal goal of becoming one of the Top 5 PC vendors by mid-1995.

The company doubled its PC shipments in 1992 to about 200,000 and said it expects to double them again this year. However, International Data Corp. analyst Richard Zwetchkenbaum said most of the increase is coming from Digital's catalog, "and there's only so far they can grow in direct response."

Digital, which got 70% of its PC sales from catalog orders in the fiscal year ended July 3, expects an equal split between the catalog and indirect channels this year, said Jesse Parker, director of product management for its PC business unit. By fiscal 1995, he added, 70% of the business should come from channels.

Zwetchkenbaum said, however, that breaking into indirect channels will be "a challenge" because Digital will have to compete more outside its own installed base.

Digital has moved up to "just outside the Top 10" in PC shipments, but mostly by taking business from second-tier companies, added Scott Miller, a Computer Intelligence/InfoCorp analyst.

Stocking deals signed with three major PC resellers and distributors last month are positive. But Digital has yet to develop marketing programs for those channels, said Randal Giusto, an analyst at WorkGroup Technologies, Inc.

Programs for the LPV and LPX lines should be in place within the next two months, Parker said.

PCs to go

Digital introduced new redesigned versions of its new PCs, available below by Dell and Intel

Small Business	DECpc LPV 425SX	i486SX 33 MHz	8M bytes	340M bytes	VESA VL-bus video card; Windows 3.1; DOS 6.0; Lotus SmartSuite	$1,499
Business professional	DECpc LPV 433SX	i486SX 33 MHz				$1,649

Back orders snare Ambra line

Billed as "fast on its feet" when it debuted this month, Ambra Computer Corp. appears to have tripped over the same backlog quagmire affecting the likes of its parent company, IBM, and Compaq Computer Corp.

The mail-order subsidiary said it underestimated demand for its notebook and high-end Blue Lightning-based systems and, as a result, is experiencing a three-week backlog.

"Blue Lightning systems sold out quickly, but we expect to be back on track in two weeks," said Craig Conrad, director of marketing at Ambra.

"When the [Ambra] systems finally came out, they went through an initial sales spike on their announcement date that far exceeded their forecasts," said John Dunkle, president of WorkGroup Technologies, Inc. in Hampton, N.H.

While Ambra would not comment on its forecast figures, WorkGroup Technologies estimated Ambra's forecast for initial sales during its first three months to be about 50,000 systems, while actual orders have been roughly twice that.

Conrad said orders for the NC425SL Notebook were also put on backorder last week. But he added they would ship in volume starting today. Pending final approval from the Federal Communications Commission, Conrad said he expects the single- and dual-Pentium processor systems to ship early and late next month, respectively.

While Conrad said Ambra was not having difficulty meeting orders for the low-end systems, at least one user said he had trouble getting hold of the 25-MHz, $1,339 S425SX model.

Stephen Ades, information systems director at garment manufacturer States Nitewear, Inc. in New Bedford, Mass., said he ordered two 425SXs the second week of this month and was initially told it would take two weeks to get them.

When he called recently to check on the order, he was told it may not ship until late next month.

Miffed, he placed several calls to Ambra and IBM corporate to complain. Last Thursday, the systems, which were supposed to arrive via United Parcel Service, arrived via Fedex.

—Stephen P. Klett Jr.

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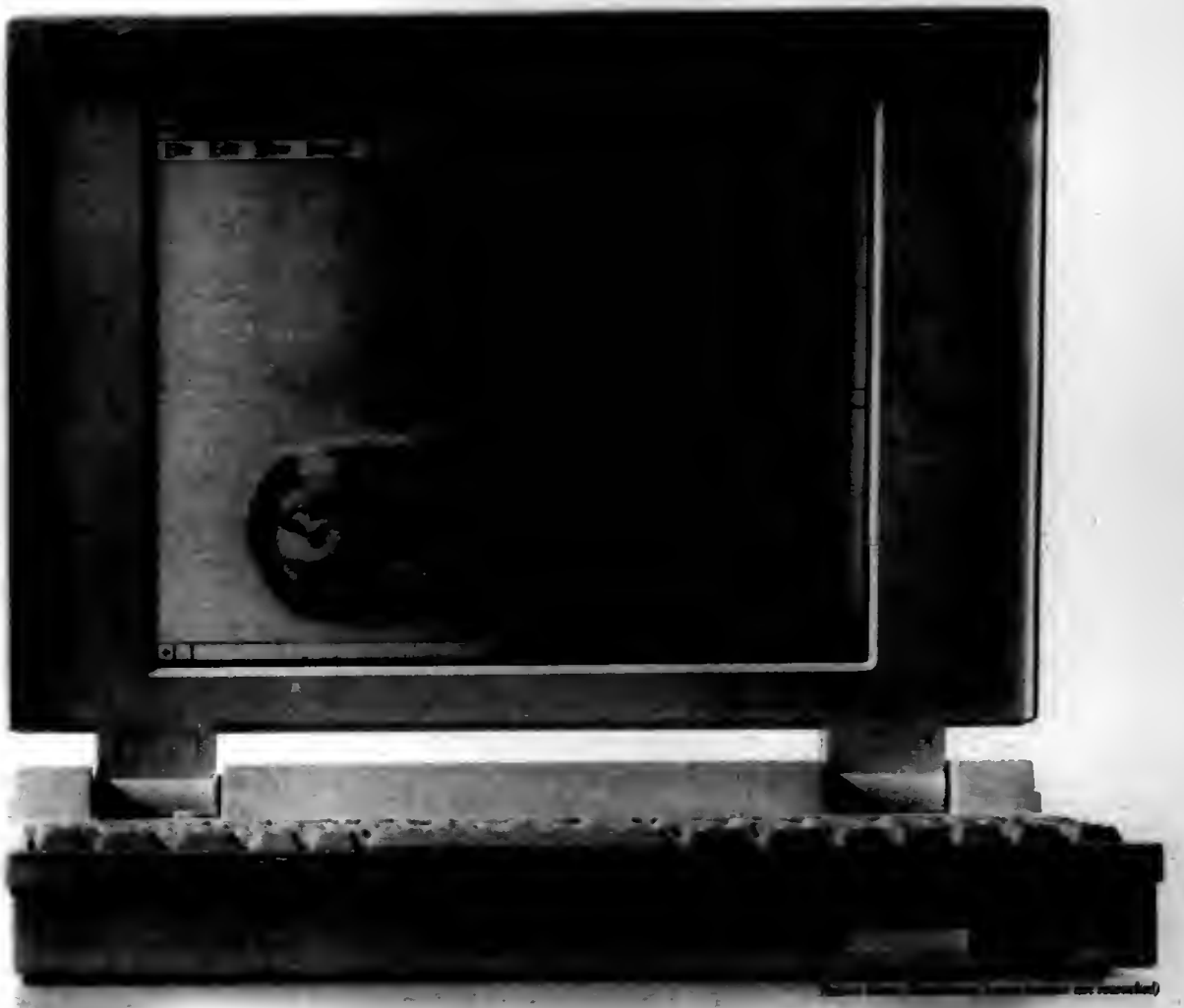

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X86 emulation

CONTINUED FROM PAGE 1

industry sources said.

"The servers due in September will have good emulation abilities, but it's the products that come in 1994 where you'll see much superior emulation," said one source familiar with the project.

IBM spokesmen declined to comment on the company's plans for enhancing its PowerPC series of chips. Intel Corp. declined comment on IBM's efforts.

Despite published reports last week, sources said IBM has little interest in jumping into the Intel cloning business against competitors such as Advanced Micro Devices, Inc. and Cyrix Corp. Nor does it have a plan to use its clean room to do any reverse-engineering based on Intel technologies.

"While IBM would have a significant impact on the Intel cloning market, it is important to keep in mind that by the time it came out with a viable product it would be the No. 4 or 5 vendor behind AMD, Cyrix, TI, etc.," said Michael Slater, editor of the "Microprocessor Report" newsletter in Sebastopol, Calif.

"IBM has no interest in duplicating Intel's chips with no value added and selling them at a lower price. That would be outs," said another source close to IBM.

IBM engineers are examining the X86 instruction set to better understand its functions. In so doing, IBM hopes to rid the PowerPC of the performance problems commonly associated with emulating multiple environments.

"There are lots of things IBM can do at the chip level in terms of microcode assists to really enhance the performance and quality of emulation," the source said. "They in no way are trying to duplicate the Intel chip on top of PowerPC."

> "But if [PowerPC] wants to play seriously as a client platform, it must have the ability to move forward without throwing away stuff users are now using. They tend to get cranky about that,"
>
> *— Bob Holmes, Southern California Gas*

While IBM is undertaking this effort, any emulation improvements made will be available to Apple Computer, Inc.

It is not clear whether superior emulation and performance of Intel-compatible applications will significantly spur sales of PowerPC-based systems.

That may be mostly determined by any pricing actions taken by Intel on its 1486 and Pentium chips and by the hardware OEMs selling systems based on those chips during the next few months.

Prices remain constant

An IBM spokesman last week said users could expect to see the divisions price their PowerPC systems fairly close to the systems they currently sell.

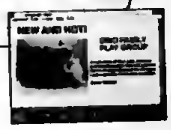
"Initially, [PowerPC-based] servers look more attractive as a server than as a client platform," said Bob Holmes, manager of systems evaluation at Southern California Gas Co. in Los Angeles. "But if [PowerPC] wants to play seriously as a client platform, it must have the ability to move forward without throwing away stuff users are now using. They tend to get rather cranky about that."

IBM's clean room efforts with the PowerPC in no way preclude the joint development agreement IBM signed with Intel two years ago, a source close to the project said. That deal gives IBM the right to create derivative works based on Intel's 80386, 1486 and successor technologies. So far, IBM has produced Personal System/2 and ThinkPad systems centered around its 486SLC chips.

But it remains to be seen whether IBM's efforts with the PowerPC increase the tension already present between IBM and Intel as a result of IBM's casting its lot with Apple and Motorola, Inc. for PowerPC.

RemoteWare and the SEMINAR you missed

AT THE VERY MOMENT AN EXPERT WAS EXPLAINING THE COST- AND SANITY-SAVING BENEFITS OF REMOTEWARE-CREATED AUTOMATED WORKFLOW SYSTEMS TO A ROOMFUL OF HIS FELLOW CLIENT/SERVER AFICIONADOS, [redacted] was sitting in a tiny center seat, in coach, staring blankly at a fly nimbly exploring the OXYGEN PANEL above him. It had come down to a scheduling conflict. One more FREE product seminar, half-day, inevitably bad deli sandwiches... potato chips that had gotten too close to the kosher dills and gone soggy. Or this junket to clean up yet another set of branch communication difficulties in Opelika, St. Louis, and San Antone. So the picture of this fly on the ceiling RUBBING ITS FRONT LEGS TOGETHER with an ominous delight didn't have the significance for him it might have had he seen that MEANWHILE, BACK AT THE SEMINAR THE REMOTEWARE FOLKS WERE SPINNING COLORFUL TALES OF SUCCESSFULLY-IMPLEMENTED FIELD COMMUNICATIONS SYSTEMS, HOLDING CHARLIE'S TECHNO-PEERS FROM COMPETING COMPANIES CAPTIVE WITH THE PROMISE OF THOUSANDS OF FULLY-AUTOMATED, EASY-TO-MANAGE AND UNATTENDED DIAL-UP COMM SESSIONS, AND RIVETING ACCOUNTS OF REAL COMPANIES WITH HUNDREDS OF MOBILE CORPORATE LAPTOPS AND REMOTE BRANCH OFFICES USING CENTRALLY-CREATED AND MANAGED ELECTRONIC FORMS, DOCUMENTS, AND REPORTS, ALL LINKED TO CENTRAL SYSTEMS AND DATABASES, AND ALL NEATLY SUPPORTED BY INTEGRAL ELECTRONIC SOFTWARE DISTRIBUTION CAPABILITIES! So these were the things Charlie was missing: solutions to the very problems that had made this one more night away from home a necessity. That, and what actually turned out to be a delicious RemoteWare lunch of pasta salad, FRENCH BAGUETTES with prosciutto and mozzarella, and fresh strawberries. But what did he know? He was headed to lunch with the fellas in San Antone. For bad deli sandwiches. And SOGGY CHIPS.



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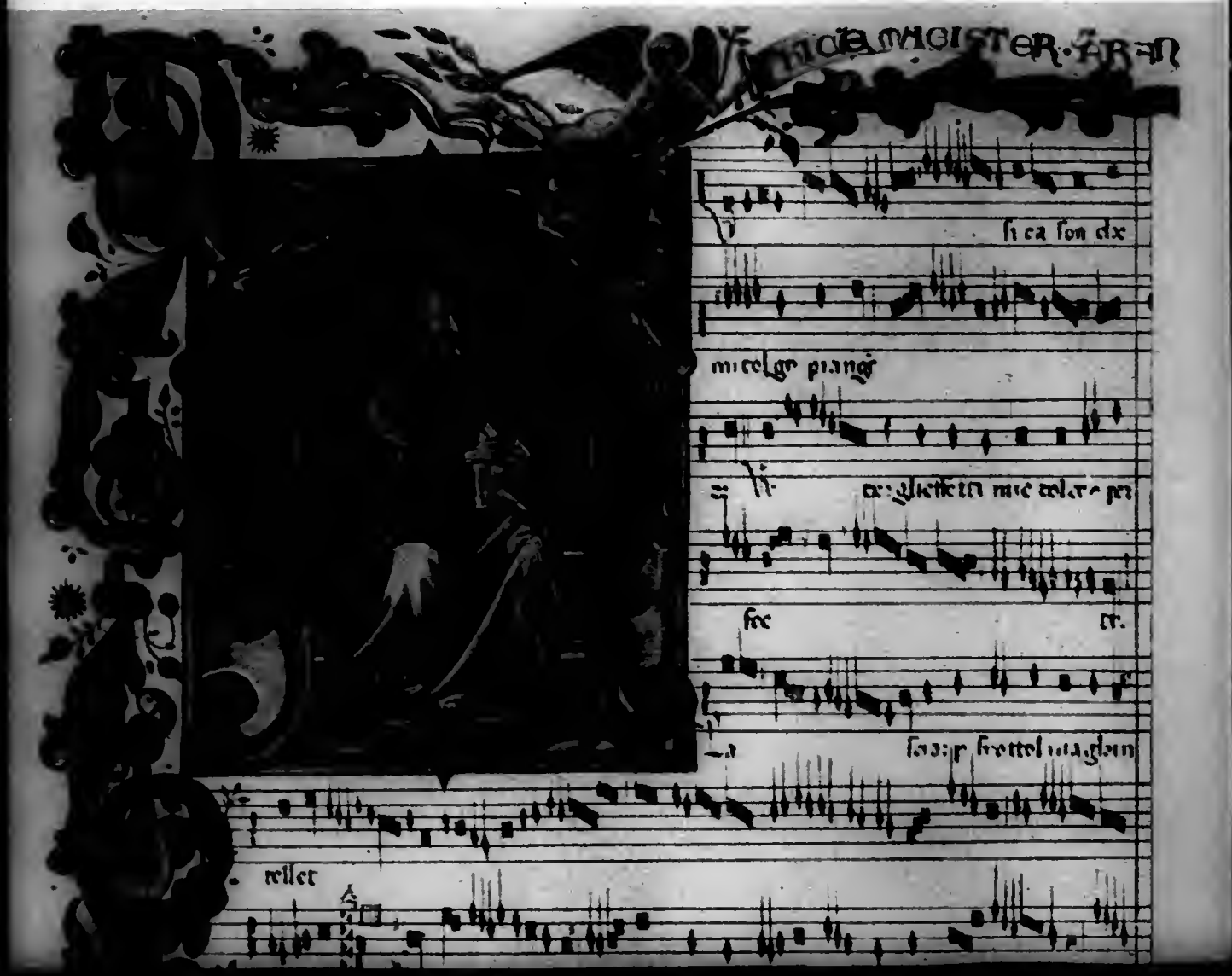

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WordPerfect 6.0 ready to roll

By Michael Vizard
WASHINGTON, D.C.

WordPerfect Corp. will announce this week a Windows version of its namesake word processing package that promises to greatly simplify support issues for information systems directors. It is slated to ship in the fourth quarter.

The long anticipated WordPerfect Version 6.0 comes with a set of highly customizable interfaces said to let IS directors deploy WordPerfect with specific sets of features for specific user groups.

Previously, WordPerfect users would adopt certain features at their own pace, resulting in complex support issues for IS directors. In addition, some IS shops were forced to adopt separate low- and high-end word processors, which were frequently incompatible, to provide solutions for novice and power users.

"With 6.0 you can hide a lot of the advanced features and deploy WordPerfect with three or four settings. Without the ability to customize applications for certain types of users, it was a real support issue," said Tom Carson, director of MIS at Zale Corp., a supplier of diamonds based in Irving, Texas.

Systems administrators can also restrict access to data at the application level. "We used to do this using PC support tools at the Windows level," said Norm Weiner, chief information officer at Philadelphia law firm Duane, Morris & Heckscher.

WordPerfect 6.0 is also the company's first word processor to take full advantage of the Windows interface. "Version 5.2 of WordPerfect certainly left a lot of areas for improvement. I think they put that out because they had to get a product out for Windows. A lot more went into the design of 6.0," said Harris Televitz, director of technology at Skadden, Arps, Slate, Meagher & Flom, the largest law firm in New York.

Televitz said his firm has stayed loyal to WordPerfect, despite robust offerings from Microsoft Corp. and Lotus Development Corp., because WordPerfect is a standard in the legal community.

However, analysts noted that while WordPerfect customers are likely to remain loyal, the firm will face significant challenges as other customers move to adopt integrated PC applications.

"The trend is definitely away from stand-alone word processors to documents that are made up of multiple applications. And that works against WordPerfect," said Krystyna Filistowicz, an analyst at Dataquest, Inc.

Pricing for Version 6.0 is $495, with upgrades from DOS, Windows or OS/2 platforms priced at $129. Competitive upgrades, from any word processor with a retail price of $395 or higher, are priced at $149.

Word wars

In a move calculated to divert attention from WordPerfect, Microsoft last week outlined an AutoFormat feature that will be included in Microsoft Word 6.0, due this fall.

AutoFormat uses IntelliBouse agents that Microsoft is including in the forthcoming release of its applications. Agents are routines that automate specific tasks.

Using the agent technology, Microsoft plans to bundle more than 400 rules in Word that examine text and format it into document style by analyzing its elements.

Word 6.0, therefore, will be able to automatically format text into a memo, newsletter, agenda or resume format, for example.

AutoFormat can run in an automatic mode or in an interactive mode that allows users to approve an action before it is taken, said Chris Peters, Microsoft general manager for Word.

Other features that will be included in Word 6.0 are support for Wizards that helps automate specific tasks, tabbed dialogs to make it easier to find specific documents and Object Linking and Embedding 2.0. —*Michael Vizard*

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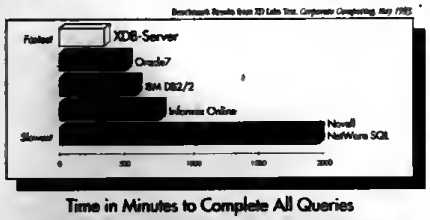

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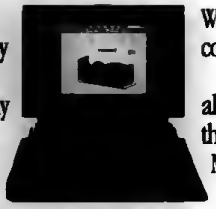

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Knocking down barriers

Eye-tracking system helps paralyzed engineer Mike Ward contribute and cope

By Thomas Hoffman

Mike Ward, an accomplished engineer at Intel Corp. in Hillsboro, Ore., is on deadline. As editor of "Failure Analysis Summit," a quarterly internal newsletter at Intel, he edits articles written by fellow Intel engineers about their failure analyses of components used in various high-tech projects.

Ward compiles the newsletter on a Compaq Computer Corp. SLT 386 PC. But you will not find him using a conventional keyboard. You see, he cannot use his hands anymore. In fact, he has lost control of all his muscles, except for his eyes. Ward has amyotrophic lateral sclerosis, or ALS.

Diagnosed seven years ago and confined to a wheelchair for the past five years, he can no longer speak or move. Ward breathes through an artificial ventilator, requires around-the-clock nursing and is artificially fed.

Commonly known as Lon Gehrig's disease, ALS is a motor neuron disease in which the nerves that control muscular activity degenerate in the brain and spinal cord. Eventually, the muscles used for breathing and swallowing are affected, usually leading to death in two to four years. But some people have lived more than 20 years after being diagnosed.

Since January, Ward, 47, has been able to continue working and communicating with his family and peers by using an eye-tracking computer system.

"I can't do anything by myself. This allows me as much control as I want," Ward said.

The Eyegaze Computer System, developed by LC Technologies, Inc. in Fairfax, Va., enables Ward and other incapacitated persons to "stare" at control keys displayed on a computer screen to perform functions including speech synthesis, typing, using a telephone and controlling environmental surroundings (turning on lights, TVs, etc.).

The desktop system is based on the Pupil Center/Corneal Reflection Method. The concept stems from weapons-tracking control research conducted by the U.S. Air Force to track a pilot's eye movements when sighting targets.

Robin McCabe

Intel's Mike Ward *can perform a variety of functions by staring at control keys displayed on the computer screen*

Catching a glance

Ward's Eyegaze system, powered by a Northgate Computer Systems, Inc. 386 PC, uses a video camera positioned below the control monitor to observe the movements of one of Ward's eyes. A low-power infrared LED mounted in the center of the lens illuminates the eye and provides a bright image of the pupil and a bright spot reflecting off the cornea.

Sophisticated image processing software determines where on the screen Ward is looking. The system predicts the gaze point with an accuracy of better than ¼ of an inch, letting its user activate keys as small as ⅝ of an inch square.

To "press" a key visually, a user must look at it for about a quarter of a second; the key flashes to indicate it has been "pressed." The computer then performs the action associated with the key.

"Mike essentially uses Eyegaze as the keyboard into his PC," said co-worker Bob Welton, a senior engineering technician at Intel who has worked with Ward for the past nine years. Ward's Compaq PC runs MS-DOS 6.0 and related programs; the Eyegaze system includes a software keyboard emulator called Words + Software Keyboard Emulator from Words +, inc. in Palmdale, Calif.

The Eyegaze system that Ward uses cost intel about $25,000.

Ward is also able to "talk" — as he did for this interview — through the Eyegaze system via a portable Toshiba Corp. 1200 HB featuring a text-to-speech system called MultiVoice TM t.0 from the Institute on Applied Technology, a division of The Children's Hospital in Boston. From the laptop, which is mounted on his wheelchair, comes a deep voice — known as "Huge Harry." The quality and intonation can be adjusted.

Ward's Compaq PC is coupled to a Digital Equipment Corp. VAX 4500 minicomputer so he can communicate with other employees via Intel's electronic-mail system.

Ward estimated that his output is t0 times greater with the Eyegaze system than with his home and wheelchair-based systems. Those rely on a muscle-activated switch that Ward controls by twitching one of his thighs, which in turn moves one of his hands to select a character on a scanning alphanumeric matrix.

Welton said the single-switch system is slower than Eyegaze and makes it difficult for Ward to "speak" in complete sentences.

"With the Eyegaze system, he's gone back to using full punctuation and complete sentences," Welton said. "It's a very good improvement for him. He's never been down about his disease, but this has greatly brightened his countenance. He smiles more."

Money an issue

One caveat of the Eyegaze system is that it is not yet portable. The biggest roadblock, said LC Technologies President Joseph Lahoud, is money. He estimated a portable Eyegaze system could reach the market in a few years if LC Technologies continues to secure government funding. "We think it can be done if the resources become available," Lahoud said.

A portable system would allow Ward to keep pace in his involvement with the Forest Grove Rotary Club and take part in more outdoor activities with his family.

Until then, the current Eyegaze system is helping Ward face his adversities. "Work keeps me from the despair that comes from being totally paralyzed," he said. "The technology that's available today makes this possible."

Mobility on the horizon

It should not be long before virtual reality technologies and speech input/keyboard-replacement systems are available to disabled Americans, experts say.

"As computers get smarter and faster and advances are made in artificial intelligence, more capabilities will exist for speech recognition systems," said Douglas Wakefield, a computer specialist at the Clearinghouse on Computer Accommodation (COCA), a division of the U.S. General Services Administration. Wakefield and Susan A. Brummel, COCA's director, also say portable systems will eventually become more common for the disabled as applications for this special marketplace are developed for the Personal Computer Memory Card International Association standard.

Wakefield, who is blind, said personal digital assistants equipped with global navigation software and microchips that store city maps will help the blind go from one location to another.

Early leaders testing laptop speech-input systems include Kurzweil Applied Intelligence, Inc. in Waltham, Mass., and Dragon Systems, Inc. in Newton, Mass., Wakefield said. — *Thomas Hoffman*

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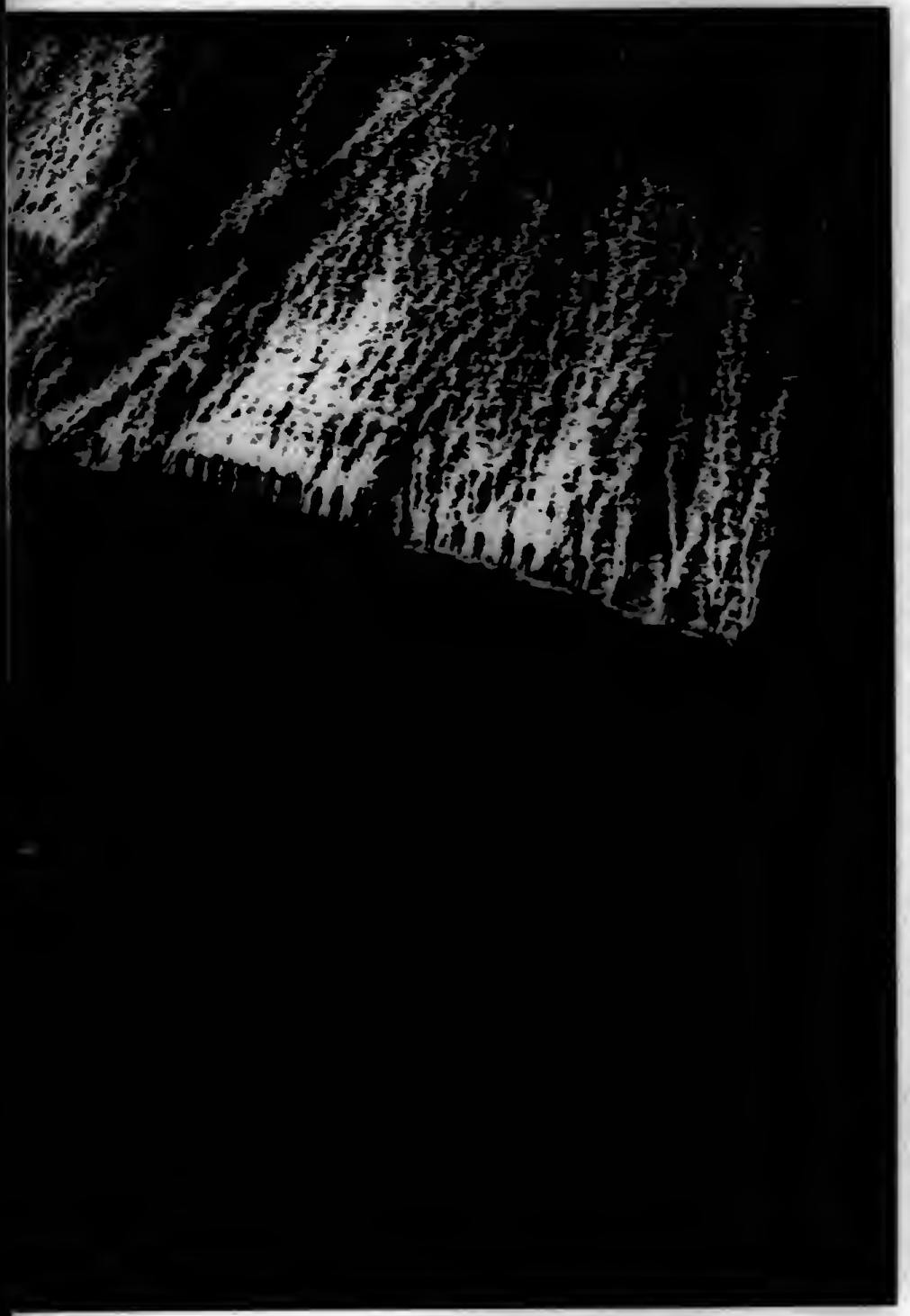

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Ramsey's ghost

Let's turn back the clock a generation to a time real late in the Lyndon Johnson administration. Real late, like about 11 p.m. the night before the inauguration of Richard Nixon.

Johnson's legal majordomo, Attorney General Ramsey Clark, slips in just under the wire with some documents that would launch a thousand legal careers. The Democrats, still smarting from the self-immolation at their convention in Chicago the previous summer, decide that IBM looks too much like a Republican monolith. So Clark and friends initiate a Justice Department investigation into a company that back then was broadly considered the world's most admired corporation.

The investigation wound its way through many hearings and ended 12 years and four presidents later with a finding of "Oops, we were wrong. Sorry we took so much of everyone's time."

If you talk to any of the ex-IBMers who were at the company during the investigation, they will tell you in unanimity that as good as IBM was in the 1970s, it wasn't all it could have been had IBM not continually been staring down the gaping maw of Big Bertha in Washington. To what degree those events added to the bunker mentality that was to pervade and almost ruin the company is a matter of debate.

But the bottom-line conclusion that historians cannot forcibly argue against is the blatant political underpinnings of the Justice Department's actions in the first place — actions that were arbitrary and capricious at best, damned sleazy at worst.

Fast forward to the present. The most influential and dominant computer company, Microsoft, has lived in the shadow of an investigation by the Federal Trade Commission (FTC) for more than a year. Hopelessly deadlocked, the five-member FTC, down to four voting members, splits on the decision of whether to take action against Microsoft.

Enter the Justice Department and its antitrust czarina Anne Bingaman, wife of U.S. Senator Jeff Bingaman (D-N.M.). They've been known to hobnob in circles where the current thinking is that anything big is bad. Except government, of course.

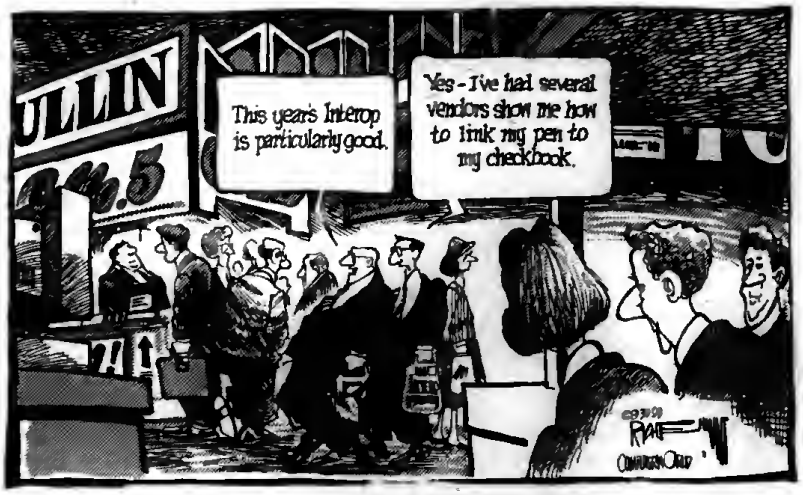
To its credit, the Justice Department decides to do what the feckless FTC would not, and that is to press ahead with the investigation. This is not to say that Microsoft has done anything illegal. I don't think anyone knows that for certain. But with the FTC deadlocked, this matter should be pursued to some conclusion. Microsoft and its customers deserve it, as do the companies that initiated the complaints.

But how on earth do we keep the politics out of this matter? And how can the investigation be stopped from evolving into the seemingly eternal three-ring circus to which the IBM affair degenerated?

There's too much at stake here to let this happen. Yet one can't help getting that sinking feeling that it's deja vu all over again.

Bill Laberis

Bill Laberis, *Editor in chief*



Oracle defends benchmarks

Oracle takes issue with Charles Babcock's "Oracle's moot court" [CW, Aug. 2] in which he derides Oracle for challenging The Standish Group's attack on industry-standard Transaction Processing Council (TPC) benchmarks.

Babcock misses the mark when he suggests Standish's charge of "fraud" on the part of Oracle is a "lesser issue" here. It is the key issue. Standish's attack went far beyond an informed, balanced debate on benchmarks. Given — as Babcock says — that the Oracle 7 benchmarks complied with the TPC specifications, charges of "fraud," "unethical conduct" and "cheating" on benchmarks were irresponsible. Standish should be held accountable for such statements.

Both Standish and Babcock publish as "fact" statements regarding Oracle 7 that are not true. Yet neither contacted us to verify the statements. Contrary to statements made, for example, Oracle 7 significantly outperforms Oracle Version 6. We are stunned Babcock could possibly assert otherwise.

Oracle does agree that the TPC review process was designed to promote informed review of published benchmarks. Oracle supports that process and submitted to it. Our benchmarks were accepted after opportunity for challenge by the 46-member council comprised of software/hardware vendors and customers.

Oracle also agrees with Babcock that Oracle's customers are the only jury whose verdict matters. And given the widespread acceptance and market leadership of Oracle 7, one can only conclude that the verdict is in.

Ken Jacobs
Vice president, product planning
Oracle Corp.

Literary laugh

It's quite refreshing that Mike Walsh of Comdisco Systems cited "Russian author" Vladimir Nabokov as a personal hero in the Aug. 9 WYSIWYG. However, I suspect that the author of *Lolita* (who departed this earth as a U.S. citizen) would roar in his grave if he knew that his subject matter was described as "life's challenges."

The great theme of Nabokov's work was the transfiguring power of art and the imagination. His books have almost nothing to teach us about capital life.

Joe Williams
Carmel, Ind.

Wrong turn

David Baum's article "The rough road to objects" [CW, Aug. 2] unfortunately perpetuates common misconceptions about object-oriented programming (OOP). He suggests that programmers should acquire products such as Visual Basic or ObjectVision to learn about OOP.

These products are not object-oriented. They are visual, or GUI, products, but they fail to meet any of the standard criteria for OOP languages. They do not support encapsulation, inheritance or polymorphism. Programmers would be better served by a true OOP language, such as SmallTalk.

Colin Davies
Simi Valley, Calif.

Flood facts

In the article "Flood has minor impact on data centers" [CW, Aug. 2], the photo caption identifies Craig Pitt as the owner of Pitt Des Moines, Inc. Pitt Des Moines is, in fact, a public company traded on the American stock exchange. Its symbol is PDM.

Also, our Des Moines plant flooded July 11, eventually to the 14-foot mark. All operations were temporarily disrupted, including use of our Application System/400 and multiple PCs that were on the ground-level floor. But within days, all office operations were functional, including the replacement of computer equipment. Plant operations are being continued at our nearby facilities.

Michael Krogstad
Pittsburgh

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Say good-bye to strategic planning

Akram Yosri

If you are a CIO who has been spending most of your time locked in a conference room with your staff going over multiple drafts of a long-term strategic planning document, stop it.

Rapid changes in information technologies, particularly software, coupled with economic constraints and fierce market competition are making this kind of insular, long-range planning obsolete. Current conditions are just too volatile for anyone to predict technology needs beyond the short term.

At one point, it made a great deal of sense to try to forecast requirements and budgets well into the future. That time is over. Today, what IS executives will be judged on is not strategic planning but their ability to adapt quickly to the unforeseeable, which depends on contingency planning.

Contingency planning is the only kind of steering apparatus that makes sense in turbulent times. If you can't foresee what's coming, at least you can create mechanisms for dealing with sudden changes in a controlled fashion. As Charles Marshall, CIO at Sunkist Growers, puts it, "While we have a five-year plan, emphasis lately has been given to the contingency component of our one-year plan. This component is set for information needs and technology platforms we expect but are not sure about."

Adapting to this kind of planning requires a major shift in attitude for many CIOs, who have been trained to believe that "not staying the course" is synonymous with failure. Furthermore, it requires a management structure and style flexible enough to withstand business pressures and economic instabilities. The long-distance-runner credo doesn't work anymore. What the times call for are leaders who know how to sprint.

Venture capitalists might be the most relevant model to work from because their main objective is to maximize return on investment, mostly through high-yielding, short-term investments and that, to an increasing degree, is how success is defined for CIOs.

How can a CIO act like a venture capitalist?

- By directing resources and expenditures to information-intensive business areas that add value to the bottom line.
- By carefully and dispassionately assessing the cost/benefit equations for all technology investments.
- By hiring or locating someone with both technology and financial experience, a sort of information technology-CFO, who can track the benefits of information technology expenditures by business area.
- By making preparedness and rapid deployment priorities.

As radical as this may sound, thinking small and tactical with an emphasis on contingency planning is really the only rational response to the kinds of changes taking place in business and industry. What firms are evolving toward is a structure where smaller business units set their own objectives, form their own information policies and control their own destinies. Trying to navigate in that environment with clumsy and inflexible planning instruments just won't work.

Yosri is a lecturer at New York University's Information Technology Institute and a consultant.

Trying groupware on for (down)size

COUNTER-INFORMATION *by* Michael Schrage

Perhaps you've heard the joke about the method actor with the bit part who didn't like what the director was asking him to do. After receiving his instructions, the actor arrogantly looks up and asks, "But what's my motivation?"

"Motivation?" the director sneers, "Your motivation is — Do it or you're fired."

This punchline kept echoing through my mind as I talked with participants at the recent GroupWare '93 conference in San Jose, Calif. This was no Groupware Woodstock, where people grooved on the concept that computer-mediated cooperation is "where it's at, man." No way. In fact, the motivation most attendees offered for exploring groupware wasn't any Tom Peters/Peter Druckeresque value such as "sharing information," "collaboration" or creating (All together now!) "The Learning Organization." The big motivator was downsizing.

No, not downsizing, as in moving applications off the mainframe to client/server. Downsizing, as in delays, cuts, firings, restructurings, sackings, reductions in force, outplacements, terminations, job losses, etc.

Think for a moment, and it becomes blindingly obvious just why groupware is becoming more popular: After downsizings, organizations have fewer people trying to do more work. The brittle infrastructure that remains just doesn't cut it anymore, and managers are grasping for whatever tools they can to handle the added burdens.

It only makes sense to grab for groupware. The hope is that groupware will act as a sort of organizational glue to stick people together and fill in the gaps that all those downsizings leave behind.

Now there's an irony in this. For years, the groupware advocates (Jim Manzi, Ray Noorda, Steve Jobs, are you listening?) have waxed charismatic on the general wonderfulness of the networked organization and how the spirit of interpersonal computing will lift corporate productivity to previously unattainable heights. Groupware was championed as a medium that would put productive people in touch with one another in new value-added ways.

This may well happen. But what's becoming clear is that the companies most interested in groupware view it as a technology that will help shrink their organizations, not position them for growth.

In other words, the motivation underlying most groupware investment today appears to be 180 degrees different from the motivation espoused by its most ardent advocates.

In a perverse way, it's reminiscent of the mid-1980s when all those clever PC pundits (including me — mea culpa) were predicting the rise of the "paperless" office, just in time to see desktop publishing become the singular driving force of the industry. We weren't just wrong — we were completely, 180 degrees wrong.

Is that what's happening with groupware? Is it possible that, instead of being a source of empowerment and collaboration, groupware will become the new medium for corporate autocracy and white-collar Taylorism? Sure, this is a company-by-company, culture-by-culture issue, but we're foolish if we ignore today's motivations for groupware investment.

The simple reality is that the driving force behind groupware today is not the values of sharing, learning and collaboration that we all deem so desirable. The motivation is, "We better try this or we're screwed."

Let's stop all the groupware empowerment pabulum and start talking about the new pragmatism. Are we investing in groupware to infuse the organization with collaborative energy? Or are we investing primarily to stanch the bleeding?

Schrage is a fellow at the MIT Sloan School Center for Coordination Science. He is also the author of *Shared Minds: The New Technologies of Collaboration*, (Random House, 1990). His Internet address is schrage@media-lab.media.mit.edu.

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Charles Babcock

Internet and beyond

Doug Johnson, a senior staff scientist at Atmospheric and Environmental Research, Inc. in Cambridge, Mass., is an Internet pioneer, a business user who has adapted the public sector design of this network of networks to private sector use.

He is also an exampte of why the Internet is generating thousands of new business users per month. From March through June, the number of commercial networks tied to the Internet increased to more than 300%, from 485 to 1,590.

Johnson regularly logs on to make use of massive databases on natural resources from the U.S. Geological Survey, air pollution from the Department of Energy and atmospheric conditions from the National Oceanic and Atmospheric Administration in Woods Hole, Mass.

Although those are mainly scientific databases, visionaries such as Brewster Kahle, formerly of Thinking Machines Corp. in Cambridge, Mass., and now the founder of WAIS, Inc. in Menlo Park, Calif., expect more and more commercial databases will soon come on-line to offer value-added extracts of U.S. Census, farm crop, stock market or geological data — for a fee.

Johnson also sends E-mail to scientific colleagues at research labs or collaborating businesses. Although the number of commercial enterprises connected this way is still limited to those with ties to the national research labs and universities, the E-mail Johnson exchanges on the Internet is particularly productive. He has adapted an Internet search technique to do keyword searches on hundreds of old E-mail messages so they remain useful beyond their immediate, fly-by existence.

Johnson is not a typical business user with an IBM PC on his desk (he connects via a Unix workstation), but what he is doing is not an impossibility for those who are. Today, both Macintosh and PC users can obtain freeware client software that allows them to connect through a modem by dialing ont to a local commercial service. Simplified search and retrieval mechanisms have also recently been added, which help to demystify this data highway.

For example, the wide-area information server, or WAIS, is a client/server application invented by Kahle that includes a search mechanism using keywords typed in by the user. All documents and files on a particular server have been indexed, and the search returns titles of those scoring the highest number of hits for the keywords. The user then selects those that reflect what he was pursuing. The WAIS system then launches another search based on this "relevance feedback," zeroing in on the subject matter sought. This mechanism allows a novice business user to pursue searches that locate the most pertinent documents.

Gopher, created at the University of Minnesota, is another two-piece interface that helps an Internet user find a particular database. The Gopher client software connects the user to a Gopher server, which offers a directory of databases under various headings. As the user makes selections, Gopher makes the connection, or "goes for" the designated documents and downloads them.

Johnson's firm had to be persuaded to pay $1,000 a month for a leased line to the Internet, but "the thing that sold it was the Internet's ability to get mail to NASA and other agencies, even to colleagues in China," he says. Now, he says, the nontechnical brass of the firm notices if the E-mail does not go out over the Internet.

If we ever get a national information highway — which will have to be larger and more closely managed than the Internet — it will owe its existence and probably many of its features to the pioneering users on the Internet.

Babcock is *Computerworld*'s technical editor. His MCI Mail address is 575-2737.

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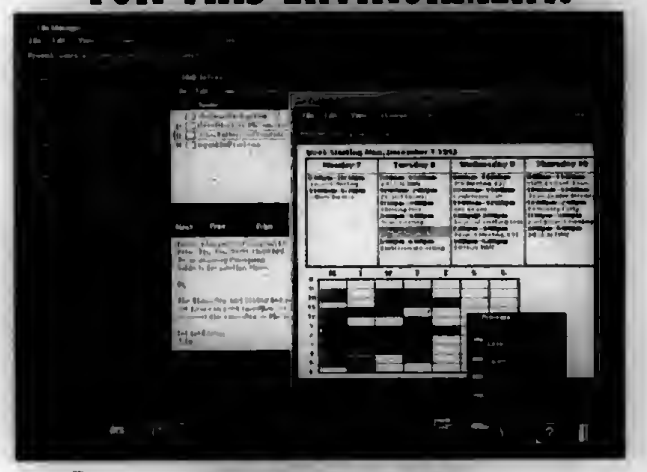

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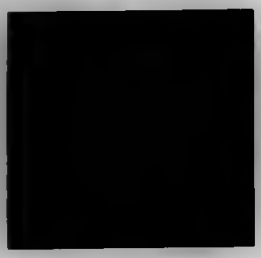

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Power tools boost sales at checkout line

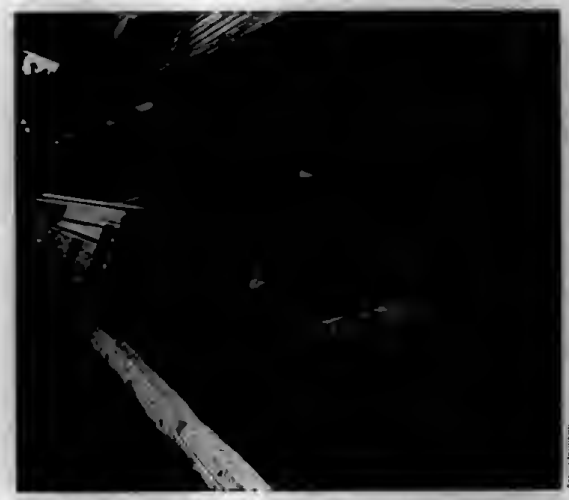
Retail home improvement chain replaces dumb terminals with full-function PCs running OS/2

By James M. Connolly

The clink-kerchunk of the old mechanical cash register has typically given way to the click-click of electronic point-of-sale (POS) systems. However, few retailers have dropped full-functioo PCs onto their checkout counters.

At Grossman's, inc., a chain of home improvement centers based in Braintree, Mass., the dumb POS terminal is yielding to a PC running IBM's OS/2. The idea surprised industry observers, although Grossman's said it feels it is positioning itself for the future.

"A lot of us have thooght for a few years that we could take the same tools offered to the office worker and make them applicable to the cashier. The cashier is a decision-maker, and we want to help them make their decisions, their sales," said John H. Christoffel, director of MIS operations at Grossman's. "Why shouldn't you make the selling and buying decisions as pleasant as possible?"



Grossman's John H. Christoffel *used backbone of existing system*

Grossman's is rolling out more than 700 NCR Corp. System 3221 terminals in its 138 stores. Those PCs are linked by a 16M bit/sec. Token Ring local-area network to NCR 3550 servers. With 25 stores now converted, Grossman's plans to step up the rollout in the fall, aiming for a late 1994 completioo date.

More flexibility

Placing more intelligence in POS terminals gives cashiers the ability to draft price quotes for cootractors, and it smooths the transition between different types of transactions. It also helps managers in their planning by simplifying reporting and by lending credibility to weekly oumbers that once were typical of the retail industry — outdated, inaccurate or irrelevant.

"As you start to implement things that make people feel the data is better, that makes people more willing to pursue an automated replenishment route. We can move from a more myth-based stereotype of retailing that has been commou in retailing for hundreds of years," said Michael Bergman, vice president of informatioo systems.

The POS system, which was installed in the first store in October 1992, is a key element of an overall store systems plan that features a 2-year-old automated inventory replenishment system. Shipments of lumber and other building materials are accompanied by an electronic data interchange shipping order and are checked in by employees using handheld, radio-frequency Telxon Corp. scanner terminals that are also used for shelf inventory and customer checkout.

The combination of the wireless devices and the PC-based POS systems could help Grossman's rethink the checkoot process, Christoffel said, noting that one possibility for busy times is to have roaming clerks scan in purchases for customers waiting in line and produce invoices for cashiers.

Custom design

In addition, the longer-term impact could include more custom marketing. For example, Grossman's could use artificial intelligence to identify the preferred materials used by a particular contractor — the company's sales strategy focuses on the contractor and the more advanced do-it-yourselfer — and anticipate when the contractor will need those materials. Or it could give the cashier greater flexibility to give discounts without waiting for a man-

Grossman's, *page 41*

On Site

Grossman's, Inc.
Braintree, Mass.

Challenge: To place decision-making tools in the hands of sales clerks and enhance automated replenishment system.

Technology: NCR POS systems running IBM OS/2, Token Ring LANs and wireless Telxon data terminals.

Results: Training time reduced for sales clerks; sales data is more reliable; staffs spend less time on inventory management and more on sales; and company is positioned to empower clerks to carry out tasks such as custom price quotes.

Suites use spurs look at licensing utilities

By Michael Vizard
HAWTHORNE, N.Y.

As software suites deployed on Windows systems contiaue to proliferate, information systems managers are finding it iacreasingly difficult to comply with the terms of software licensing contracts.

To solve this problem, some IS managers have turned to Express Meter 2.0, a license management program by HDC Computer Corp. in Redmond, Wash., that runs across a variety of networks, including Novell, Inc.'s NetWare, IBM's LAN Manager, Banyan Systems, Inc.'s Vines, Digital Equipment Corp.'s Pathworks and Artisoft, Inc.'s LANtastic.

Express Meter, which sits as a driver in a Windows client, monitors and tracks the launching of each application oo that system.

Big money

In 1992, the Software Publishers Association cited 747 companies for license violations, resulting in $3.9 million in fines.

Because of this capability, Ciba-Geigy Corp. has adopted Express Meter at its Hawthorne, N.Y., facility as a tool that helps reduce the oumber of software licenses it needs to acquire.

At Ciba, end users launch applications from a network server, which was designed to support a number of concurrent users.

"Today, most shops are faced with either buying copies for every user or putting 100 copies up on a LAN. I couldn't see justifying copies of software on every desktop," said Paul Elliott, a programmer/analyst at Ciba.

Relying on the honor system

But without a license metering facility, Ciba, like most companies that have adopted a server license model, was complying with software license restrictions using an honor system.

"Ciba's a major company, so complying with licensing restrictions is a big deal. We're going to make sure that every clieot comes preconfigured with a set of virus utilities from Norton and the license management software," Elliott said.

He added that while his osers have noticed a slight performance penalty after installing Express Meter on Intel Corp. 1486-based systems, the performance hit is not really a significant issue.

"Express Meter is really a dynamite product. I think it's the only prodoct that can actually monitor suites," Elliott said.

According to Elliott, most companies are in violation of their suite contract because they think that their liceuse will allow them to have separate users launching different parts of a suite. But technically, a suite license does not allow one user to launch a presentation graphics package while another user is launching a word processor.

Elliott added that Express Meter is a fairly flexible offering that can be used to monitor both local and server-based applications. In addition, Express Meter can be configured to just monitor software use, put users in a queue waiting to access software or simply lock them out of a software package altogether.

Ciba is currently completing a 25-user pilot with Express Meter and plans to deploy the license utility on as many as 900 desktops connected to VAX servers using Digital's Pathworks network operating system.

It's all time high, wiping out more than billion in shareholder value.

'Steep Learning Curve'

Those pressures leave little time for a new boss to master IBM's business. Fully 51% of IBM customers surveyed by Computerworld magazine say IBM needs to hire a CEO with a technology background. With Mr. Gerstner lacking such a pedigree, "he's going to be on a very, very steep learning curve," says David Hanna, a former IBM executive who is now president of Hanna Group, a computer-consulting

THE WALL STREET JOURNAL.
March 25th, 1993

Computers & Automation

"Information systems managers are grasping onto this as a Holy Grail," said Paul Gillin, executive editor of Computerworld, which a just one of many industry trade publications that spotlight reengineering on a regular basis. "It is an important leap for corporations."

The hype should reach crescendo in May, when a new book by management consultants Michael Hammer and James Champy will be [illegible] "Reengineering the [illegible] Revolution."

Investor's Business Daily
March 25th, 1993

...eir question: Where are the productivity savings?

The New York Times
April 25th, 1993

CORPORATE executives appear to be more knowledgeable about computer technolgy than ever before, but they have also become more demanding and less orgiving, a new survey has found. While they believe information technologies are the key to competitive advantage, they also say that they have not been getting their money's worth.

The survey, conducted by the computer industry newspaper, Computerworld and Andersen Consulting, also found that 81 percent of top executives are personally using computers in their daily jobs, nearly double the percentage reported when the survey was first taken four years ago.

More than 200 chief executives, chief operating officers, and chief financial officers, representing a broad range of businesses, participated in the study, the results of which were published in Computerworld last week. Anaual company sales ranged from $250 million to $20 billion.

...CUSTOMERS HAVE THEIR SAY TOO

■ IBM directors should forget about hiring another salesguy to replace John Akers as CEO. And whoever he is, Aker's successor should fire a whole lot more people. So says a Computerworld survey of executives at 100 companies that spend at least half their computer budgets on IBM products. The participants, who work at the likes of Kmart and Parker Hannifin, a maker of pneumatic and hydraulic components, also said IBM's reorganization into smaller business units should go further.

Computerworld, in addition, interviewed various computer industry luminaries, including Steve Jobs. The Next CEO marveled that none of IBM's machines from mainframes to PC's uses the same software. Says Jobs: "IBM's troubles stem from the fact that they approach everything from a hardware strategy, and the Nineties is a software decade."

Not everybody agreed that breaking up is the way for IBM to go. Said Larry Ellison, CEO and co-founder of Oracle, a software company: "This is the

...93 FORTUNE 11

FORTUNE
April 5th, 1993

DESK, THERE'S A MOUSE in the corner office. The percentage of executives who regularly use computers nearly doubled in four years, to 81% from 42% in 1989, says a study by Computerworld magazine and Andersen Consulting. Fewer than half think they are getting their money's worth from corporate computer systems.

THE WALL STREET JOURNAL
April 20th, 1993

The New York Times
March 25th, 1993

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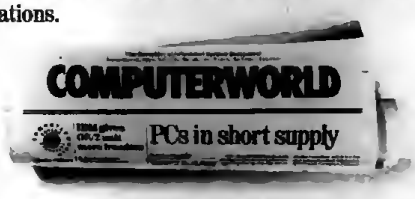

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Grossman's

CONTINUED FROM PAGE 39

ager's approval.

"We don't really know what this business is going to evolve into, so what we did was take the backbone and use it as an open approach," Christoffel said.

One logical extension of the system would be to place the POS software on a laptop computer and give it to a salesperson for on-site calls. Another might be to give it to the contractors who could then place their own orders.

That type of option is made possible by the flexible fourth-generation language in which the POS system was written — Application Manager from Intelligent Environments in Hewlsburg, Mass.

> "Why shouldn't you make the selling and buying decisions as pleasant as possible?"
>
> —*John H. Christoffel, Grossman's*

Grossman's is what remained when parent Evans Products went through final bankruptcy proceedings in the mid-1980s. The company at that time had what Christoffel now describes as a rather antiquated, proprietary POS system. Grossman's budgeted $15 million for a three-year project. Working in an atmosphere of austerity — Grossman's IS staff now totals 70, down from a high of 120 — the company had expected to recoup its investment through increased margins and "our freeing the store staffs for selling," Christoffel said. However, falling hardware prices have resulted in some unexpected savings.

At the cashier's station — the site of high employee turnover throughout the retail sector — use of PCs is expected to ease training by being more intuitive than traditional IBM 3270-type terminals.

For example, Christoffel demonstrated how a cashier wanting to process a refund on the PC sees the screen change color to red, whereas the older application was prone to mistakes or fraud because the same screen form was used for both sales and refunds.

OS/2's Database Manager also gives the cashier more opportunities to perform alphabetical searches for product information. The server holds price information and relays sales information to Grossman's Hitachi Data Systems Corp. mainframe. Credit authorizations pass through a satellite network and return in four seconds, compared with the up to 45 seconds it took for dial-up authorization.

Personal computing

AST adds to family of entry-level PC equipment

By Michael Fitzgerald
IRVINE, CALIF

AST Research, Inc. last week broadened its Bravo PC family with the addition of a minitower server and a notebook computer.

The Bravo line has been AST's entry-level brand for some time, and analysts said they thought AST was wise to extend it. With the new products, AST offers users standard desktops, slimlines, Energy Star-compliant desktops, a tower server configuration and notebooks.

"They really did a nice job of fleshing out the product line," said Ted Julian, an analyst at International Data Corp. in Framingham, Mass. "They've solidified the line and perhaps have helped define it better in users' minds."

Aggressive pricing

Pricing on the new Bravos, all of which are 486-based and include local-bus graphics, including the two notebook computers, looked aggressive. AST will start its base PC at $825 with no hard drive, and the server will start at $1,300.

The notebooks come with a monochrome, passive-matrix color or active-matrix color screen, and prices range from an aggressive $1,699 to $3,549 for the active-matrix, thin-film transistor product.

The Bravo MT server marks AST's first low-end server product. With its Bravo LP, it also added a family of PCs compliant with the Environmental Protection Agency's new Energy Star program.

Competitive edge

The expansion of the Bravo line to include notebooks and servers may help AST compete more effectively with the likes of the IBM PC Co. and Compaq Computer Corp. Most companies have not offered so many different types of PCs within a single product family, analysts said.

AST officials said they chose to offer an unusually broad variety of form factors because "we were trying to listen to what our customers wanted, rather than look at what IBM or Compaq or Dell were doing," said Daniel Sheppard, AST's director of marketing.

According to Sheppard, AST hopes the variety of form factors, in addition to other features, such as flash-upgradable Basic Input/Output System, will help it stand out in the midrange corporate PC market and earn it new customers.

AST lineup

Bravo MT minitower
Processors: 33-MHz Intel Corp. i486DX, 33/66-MHz i486DX2; Pentium-upgradable; six bays, six slots; optional 170M- or 340M-byte hard drives.
Base price: $4,300.

Bravo LC PCs
Processors: 25-MHz i486SX, 33/66-MHz i486DX2; five bays, four slots; optional 120M- or 210M-byte hard drives.
Base price: $825.

Bravo LP PCs
"Green" PC
Processors: 25-MHz i486SX, 33-MHz i486DX, 33/66-MHz i486DX2; three bays, two slots; optional Token Ring, business audio and Ether-audio.
Base price: $915.

Bravo NB notebook
Processor: 25-MHz i486SX; integrated trackball; monochrome or passive-matrix color display; one Personal Computer Memory Card International Association Type II slot; 80M- or 170M-byte hard drive.
Base price: $1,699.

Toshiba expands its Satellite notebook line

By Stephen P. Klett Jr.
IRVINE, CALIF

■ The Computer Systems Division of Toshiba America Information Systems, Inc. will unveil today a new family of Satellite notebooks based on Intel Corp.'s 40-MHz, 3.3v, SL Enhanced i486DX2 microprocessor.

The Satellite T1950 series includes three models: the T1950 with a 9½-in. dual-scan color LCD; the T1950CT with an 8.4-in. color active-matrix LCD; and the T1950 with a 9½-in. monochrome LCD. All models come with 4M bytes of random-access memory, which is expandable to 20M bytes, and offer customers a choice of 120- or 200M-byte hard drives. In addition, a 320M-byte hard drive is available for the T1950CT model.

Estimated street prices start at $2,799 for the T1950/120 and $2,499 for the T1950/200. The T1950CS/120 starts at $2,799, and the T1950CS/200 starts at $3,049. All above products are shipping now. Pricing for the T1950CT, slated to ship in 60 days, was not available at press time.

The T1950 weighs 6½ pounds, while the T1950CT and CS weigh 7.4 pounds and 7 pounds, respectively.

Powered by a nickel metal hydride battery pack, the T1950 series has a battery life of more than three hours for the T1950 and two-plus hours for the T1950CT and CS. According to Toshiba, the T1950 recharges in 2.3 hours, and the T1950CT and CS models recharge in 1.4 hours.

Power saver

To conserve battery life, the series uses Toshiba's MaxTime power management system, which includes automatic display and hard disk shutdown after a period of inactivity set by the user.

MaxTime also includes an automatic CPU "sleep" mode, a low-battery warning light, an AutoResume electronic bookmark and an AutoSave feature that enables AutoResume if the battery runs out of power.

The notebooks feature a 14.5mm Personal Computer Memory Card International Association (PCMCIA)-2 expansion slot that allows connection of PCMCIA data/fax modems with RJ-11 jacks, hard drives, networking cards and other industry-standard options available from Toshiba and third-party manufacturers.

All models feature power-on password protection and a Kensington lock slot for data security and theft protection. The series comes preinstalled with Windows 3.1 and Ultrafont and includes Microsoft Corp.'s BallPoint 2.0 trackball.

NOTEBOOKS

Leading the pack

Estimates from International Data Corp. place Toshiba as the No. 1 U.S. portable vendor, with a 16.2% market share last year. Toshiba also ranks first among IBM-compatible notebook vendors, with a 20.7% volume share.

Software reduces litigation costs

By Michael Vizard
SAN RAMON, CALIF

in a move that is expected to be warmly received in the legal offices of most corporations, Stenograph Legal Services, Inc. has begun delivering a Windows version of its Discovery litigation support software.

The software allows lawyers to easily scan transcripts using Boolean operators and wild card searches using keywords and phrases.

"I love it. It saves a lot of billing charges because lawyers and paralegals don't have to leaf through piles of transcripts," said John Aseveto, a paralegal at Thelen, Marrin, Johnson, Bridges, a law firm in Los Angeles.

Aseveto said that as corporations move responsibilities for court cases to in-house lawyers and paralegals, use of Discovery at corporations will increase. "About 90% of the court reporters out there will provide transcripts in a Discovery format. And those that don't will convert ASCII formats into Discovery," Aseveto said.

He said given the cost of litigation, the investment in Discovery is "a ridiculously good deal."

Discovery is priced at $199 but is available at an introductory price of $99.

Is there a simpl
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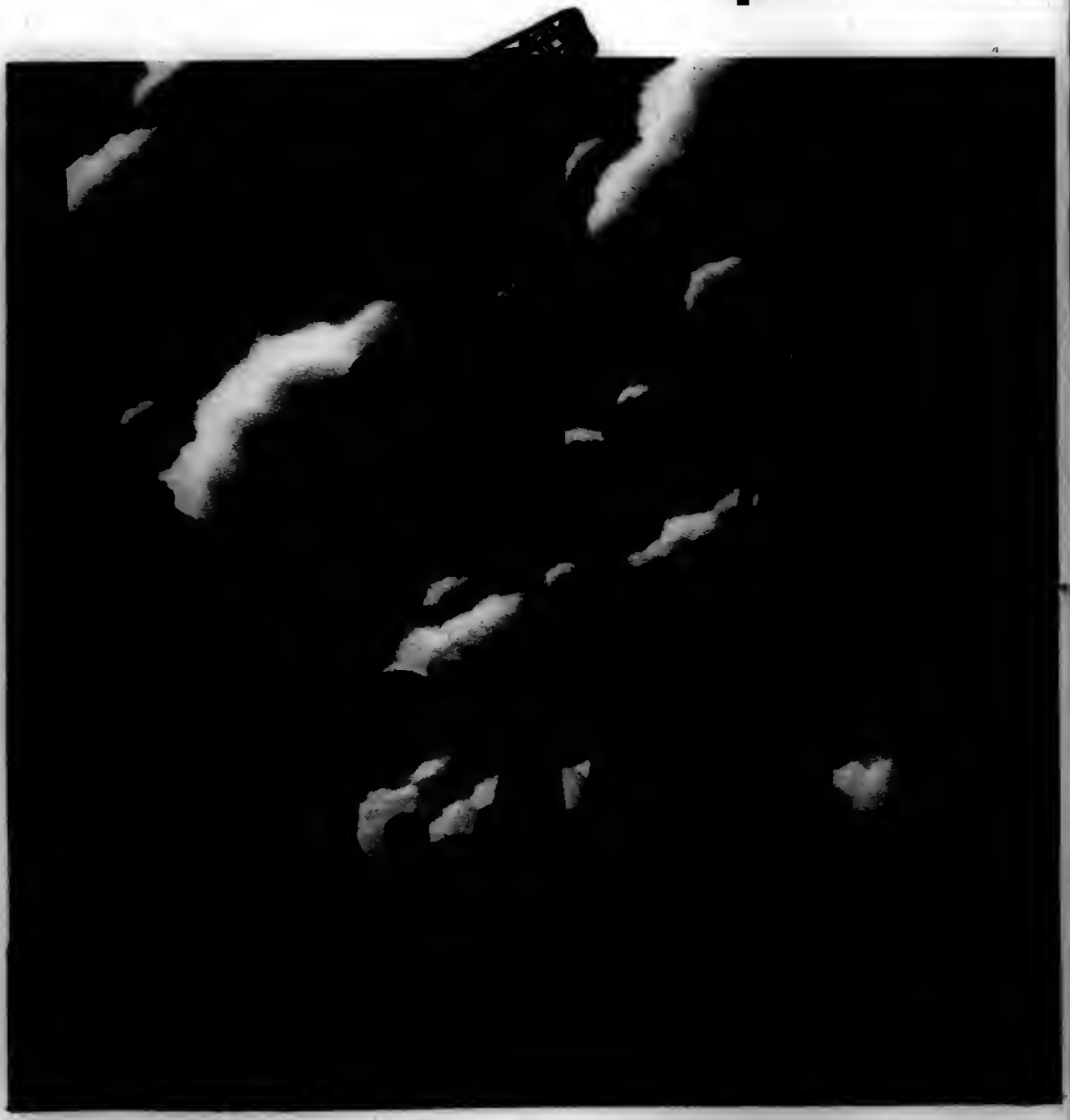

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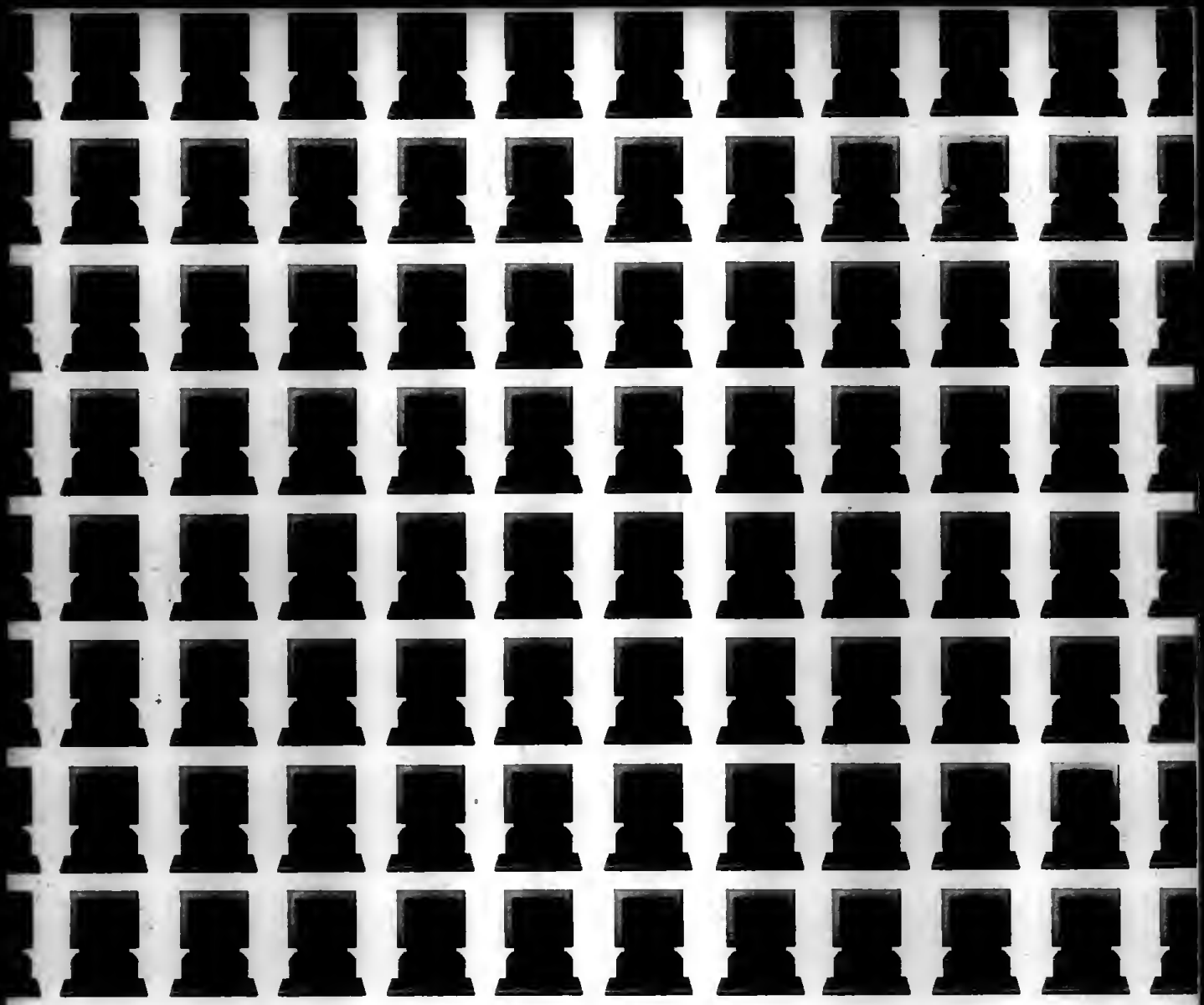

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[redacted]

Software

Horizons Technology, Inc. has introduced Sure MAPS 2.0, a Windows and DOS version of its CD-ROM-based desktop mapping software.

The product offers raster mapping capabilities that can present the shape of tunnels, bridges, large buildings, waterways and landmarks such as parks and airports.

The software can draw lines, circles, rectangles and polygons to calculate distance or annotate specific map areas, the company reported.

A library of 22 optional "Map Sets" is offered that houses detailed maps of more than 60 major metropolitan areas in the U.S.

Sure MAPS 2.0 costs $199. The Map Sets cost $99.

▶ *Horizons Technology*
3990 Ruffin Road
San Diego, Calif. 92123
(619) 292-8331

Microsoft Corp. has introduced Microsoft Open Database Connectivity (ODBC) Desktop Database Drivers Version 1.0, a set of drivers that provides Windows operating environment-based applications with access to desktop databases and file formats through ODBC.

According to the company, customers can use the drivers in conjunction with ODBC-enabled applications or create new applications.

Data is transferred to applications from desktop databases and file formats such as Borland International, Inc.'s dBase III and dBase IV, Paradox 3.0 and 3.5, Microsoft's Access database management system Versions 1.0 and 1.1, FoxPro DBMS Versions 2.0 and 2.5 and formatted text files.

The drivers cost $49.

▶ *Microsoft*
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Redmond, Wash. 98052
(206) 882-8080

MicroBiz Corp. has announced that The Business Controller Plus Version 3.3, point-of-sale software, will begin shipping early next month.

According to the company, The Business Controller Plus is a multipurpose business management software package that is compatible with any PC with a hard disk drive.

The product can be used for purchasing and receiving, vendor tracking, sales reporting, inventory and customer tracking and invoice or receipt printing.

New features include enhanced barcode printing functions and a recurring billing option that enables users to automatically update their accounts receivable and generate customer bills.

Requirements include a 386 or higher PC or IBM compatible, an 80M-byte hard drive, 2M bytes of random-access memory and DOS 3.3 or higher.

A single-user version of the product costs $1,595, and a multiuser system (as many as four users) costs $2,495.

▶ *MicroBiz*
500 Airport Executive Park
Spring Valley, N.Y. 10977
(914) 425-9500

Ocean Isle Software, Inc. has introduced ReachOut Total Remote, software that mixes remote control and remote access functionalities into one program.

According to the company, the product can prepare a document on a laptop, dial into the office network and fax the document using the office fax software.

ReachOut Total Remote automatically eliminates the need to copy from the laptop to the office network. The product comes equipped with a full-featured file manager and also has the capability to bridge dissimilar networks.

ReachOut Total Remote costs $249.

▶ *Ocean Isle Software*
2nd Floor
1201 19th Place
Vero Beach, Fla. 32960
(407) 770-4777

Hardware

CypherTech, Inc. has announced its CypherScan line of Business Card Scanning Systems.

The line consists of CypherScan 1000, a complete ready-to-use system that has a compact scanning unit and Windows software; CypherScan HF-flatbed, a Windows software version for use with Hewlett-Packard Co.'s ScanJets and compatibles; and CypherScan HF Handheld, a Windows software version for use with Logitech, Inc.'s scanners and compatibles, the company reported.

Users can put business cards into their computers, usually without having to type in the information. First name, last name and address information is automatically determined and entered into corresponding database fields.

Prices range from $145 to $395.

▶ *CypherTech*
250 Caribbean Drive
Sunnyvale, Calif. 94089
(408) 734-8765

Texas Instruments, Inc. has introduced the TravelMate 4000E WinSX/25 Color, a notebook that weighs 6 pounds (including battery) and is powered by a 25-MHz 486SX processor. The product features an advanced passive color display. Cost: $2,499. Texas Instruments, Austin, Texas (512) 345-1145. ... **Dragon Systems, Inc.** has announced DragonDictate-30K Version 2.0, a speech recognition system. Without using a keyboard, users can create letters and business memos or complex reports and documents by dictating data and text into their computers. Cost: $4,995. Dragon Systems, Newton, Mass. (617) 965-5200. ... **DeltaPoint, Inc.** has announced Graphics Tools for Windows, a suite of utilities for browsing, cataloging, converting, organizing and capturing multimedia and graphics. Users can find and view thousands of media files on demand. A suite of additional utilities is provided to handle graphics file conversion, image editing and image processing. Cost: $169.95. DeltaPoint, Monterey, Calif. (408) 648-4000.

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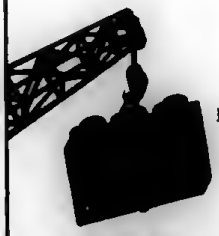
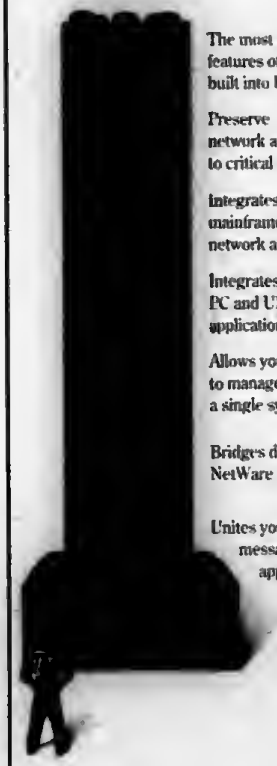


Provides a core network operating system.



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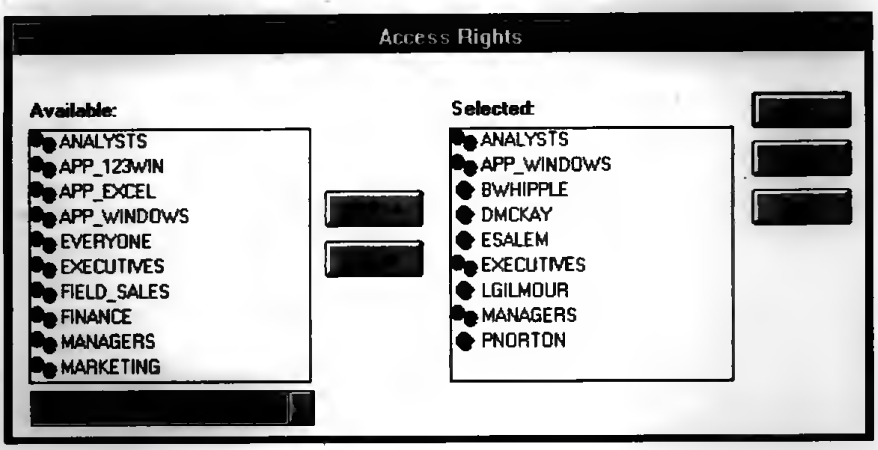

Peter Norton, the leader in Windows utility software.

It seems Windows was designed to make everyone's life easier. Everyone, that is, save for today's network manager.

Saving that manager is exactly what Peter Norton has in mind. With Norton Desktop's Network Menuing Admin Pack 2.2 (NMAP for short), you now have the power to take complete control over access to network* applications.

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How the feds find data

Retrieval system more intuitive than traditional search tools

By Gary H. Anthes

Some people at the U.S. Department of Defense are feeling a bit defensive these days as their budgets shrink but not their work loads. So when analysts supporting the Joint Chiefs of Staff were given the job of developing a system to store and retrieve gigabytes of data — but not enough funds to scrub the data clean — they turned to Excalibur Technology Corp. for a solution.

In data retrieval, a miss is as good as a mile, but San Diego-based Excalibur has a search technique that users say greatly reduces the odds that sloppy queries or dirty data will lead to the heartbreak of an empty screen.

In a demonstration, John Weiler, Excalibur federal director, typed in, "not ask not what i can do for your but ask what." In seconds came the "match" from a database of 14,000 documents: "Ask not what your country can do for you; ask what you can do for your country," from President John F. Kennedy's 1960 inaugural address.

"If I say, 'Be to, not be to,' you'll still think Shakespeare," Weiler explained. "Most computers won't, but we will."

Excalibur's PixTex Electronic Filing Software (EFS) uses neural network technology to support "fuzzy searching." Unlike most retrieval systems that rely on keyword matching, PixTex/EFS employs pattern recognition at the binary level. With a conventional word-search approach, a single wrong bit would cause a character to change and the search to fail. But to PixTex/EFS, the binary pattern overall might still be 99% correct and hence judged a good match.

The software that remembers

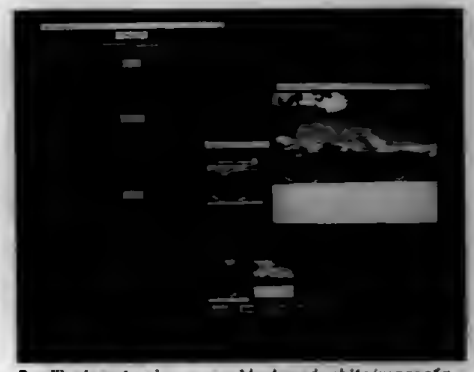
In addition to using this extra level of granularity, the neural network technique — pioneered in a classified project for two national laboratories 12 years ago — adapts and grows smarter with use. As the database and its associated binary indexes grow, the software is able to recognize variations of patterns it has seen and indexed before.

The technology is particularly appropriate with databases built by optical character recognition (OCR) scanning, Weiler said.

PixTex/EFS can accurately search raw OCR-processed text with no need to correct or rekey the data, which can run $1 to $5 per page, Weiler said.

The Joint Chiefs of Staff are loading some 3 million microfilm images and 750,000 paper pages by OCR into databases on IBM RISC System/6000s running PixTex/EFS. "With such a backlog to get scanned in, we couldn't conceive of having someone edit every page in order to produce a 100% quality database," U.S. Air Force Maj. Keylor Eng said.

Eng said the system can find references to Col. Muammar el-Qaddafi in all of its spelling variations, even if the input query is misspelled.



Excalibur's system *here uses a black-and-white image of a wheel as a clue to retrieve the original color image from a database of images*

In addition to ASCII text, PixTex/EFS can handle images — ones the Federal Bureau of Investigation may use for fingerprint recognition — and signals, such as seismic patterns in oil exploration. Users include the following:

•The Library of Congress uses it in its

Excalibur, *page 50*

Groupware

Object software facilitates electronic discussions

By Michael Vizard
HOUSTON

As part of an effort to create a collaborative computing environment without having to deploy additional platforms, The M. W. Kellogg Co. has adopted a conferencing package from Office Express, Inc. in Atlanta.

Called GrapeVine, the Office Express software is based on an object file system that allows users to participate in specific discussions using filters to create specific profiles of interest.

As a result, each comment added to the database is stored as an object. The relationship between objects is tracked using an index, which in GrapeVine parlance is referred to as a thesaurus. On these systems, discussions are stored as binary large objects in either a flat file system or a SQL database that provides pointers to the individual comments that are stored as objects.

"Each time a new item is added to the database, the thesaurus will check to see who has an interest in that item and send them a message that there's been an update that will interest them," explained Richard Emery, Office Express business development manager.

For example, Kellogg uses GrapeVine to distribute technical documents to the appropriate user based on a set of interests that have been programmed into each user's profile.

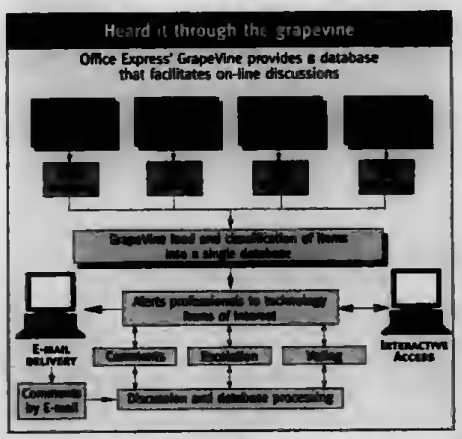
According to David Lee, manager of application development for information systems, the engineering and construction firm opted for GrapeVine over other solutions. That is because as an engineering company, it has a large commitment to OpenVMS systems from Digital Equipment Corp. that are not supported by products such as Notes from Lotus Development Corp.

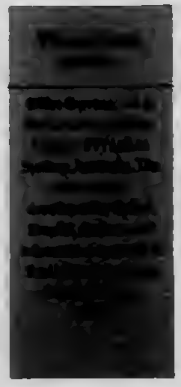
And while Digital offers a conferencing package called VAX Notes, Lee said Kellogg opted for GrapeVine because it has better support for PCs and the ability to load external data, run on top of multiple electronic-mail packages and easily follow threads of discussions.

PC potential

While most of Kellogg's use of GrapeVine has been based on a 500-user license for OpenVMS, Lee said he is currently evaluating a project that will call for using GrapeVine on PCs.

In addition to supporting Windows, Macintosh and Unix clients, GrapeVine runs on OS/2, IBM's AIX, Sun Microsystems, Inc.'s SunOS and OpenVMS servers. Support for Microsoft Corp.'s Windows NT is due in the third quarter.





Networks supported include Novell, Inc.'s NetWare, Microsoft's LAN Manager, Transmission Control Protocol/Internet Protocol and Apple Computer, Inc.'s AppleTalk.

E-mail switch

However, Lee noted that his greatest challenge remains getting people to switch their on-line discussions from E-mail systems such as Digital's All-in-1 offering to a conferencing package.

"The people who rely heavily on E-mail tend to still use it, even though it's easier to pull replies together and follow threads of discussions in conferencing software," Lee said.

According to Office Express, GrapeVine differs from Notes in that it does not seek to provide a programming environment on top of a distributed architecture made up of many gigabyte Notes databases. Instead, GrapeVine is a single database that uses filters to automatically route documents to users over E-mail.

"We don't have a development front end, so in some cases we have customers using GrapeVine alongside Notes by forwarding documents to a GrapeVine mailbox," Emery said.

Pricing for GrapeVine ranges from $400 to $800 per seat, which includes a server license.

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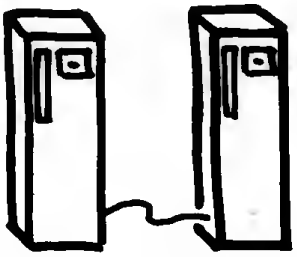

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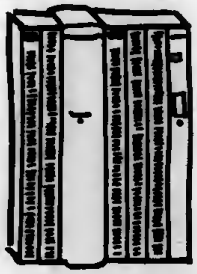

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Briefs

SCO supports Ingres, Informix

The Santa Cruz Operation (SCO) recently signed joint marketing agreements with Informix Software, Inc. and The ASK Group, Inc.'s Ingres Products Division. The deals call for SCO to sell and support Ingres and Informix database and application development tools.

Sybase certifies DB2 access

Sybase, Inc. has started a program to guarantee users access to data stored in IBM's DB2 warehouse through specific "certified" third-party software makers. Sybase has tested seven tools to make sure they work with the Sybase OmniSQL Gateway product, which interprets tool commands for use with DB2 applications. Those vendors are Business Objects, Inc., Clear Access Corp., KnowledgeWare, Inc., Open Books, Inc., Powersoft Corp., Q+E Software and Trinzic Corp.

PC data access

Trinzic recently unveiled InfoHub, a link designed to let PC users access data stored in mainframe-based or nonrelational database management systems. The product comes in two pieces: a driver compatible with Microsoft Corp.'s Open Database Connectivity standard and server software that resides on a mainframe. Prices for InfoHub, which is due out next month, range from $50,000 and $75,000, according to Trinzic officials.

SCO targets superservers with its alliances

By Jean S. Bozman
SANTA CRUZ, CALIF.

■ In a bid to information systems sites planning to "upsize" their local-area network applications, The Santa Cruz Operation (SCO) is positioning its Unix-on-Intel desktop operating system for multiprocessor superservers.

Industry analysts said the move, announced at the recent SCO Forum developers conference, is an attempt to reverse the previous emphasis on SCO's Open Desktop user environment.

Large SCO servers will require the multiprocessor MPX version of SCO Unix and a high-end Intel Corp.-based machine, such as those from Wyse Technology, Inc., Compaq Computer Corp. or Tricord Systems, Inc., SCO executives said.

Low-end servers typically support four to six users, said Paul McGuckin, a program director and Unix analyst at consultancy Gartner Group, Inc. But some of the larger servers might support more than 100 users, McGuckin said.

More than 60% of SCO systems are installed in small and medium-size businesses, said Sam Spadafora, senior vice president of worldwide field operations at SCO. But SCO will increasingly target downsized applications in large enterprises, he said at the SCO Forum.

Too soon to know

THE PRIME COMPETITOR FOR SCO'S OPEN SERVER WILL REMAIN NOVELL, INC.'S UNIXWARE DESKTOP UNIX SERVER, SAID PAUL MCGUCKIN, A PROGRAM DIRECTOR AND UNIX ANALYST AT GARTNER GROUP'S MIDRANGE COMPUTING STRATEGIES SERVICE. IT IS TOO SOON TO JUDGE THE IMPACT OF NEW UNIX COMPETITORS ON THE INTEL ARCHITECTURE, INCLUDING SUNSOFT, INC.'S SOLARIS AND NEXT, INC.'S NEXTSTEP 3.0, HE SAID.

Platform partnerships

Also at the forum, SCO announced partnerships with Lotus Development Corp., Computer Associates International, Inc., Wyse and Informix Software, Inc. to bolster its claims of providing a robust server platform. These firms agreed to help SCO provide technical support to large corporate IS organizations.

U.S. Army Maj. Gen. Gary A. Stemley told forum attendees that he plans to install 13,000 SCO servers on 9,000 LANs to manage applications for 60,000 users at Army Reserve units nationwide. The Reserve Component Automation System (RCAS) contract, based on SCO servers and Informix databases, is managed by Boeing Computer Services, Inc. Roughly 200 servers for 2,000 users are now installed, many of them in California; the rest should be installed by late 1994, Stemley said.

One advantage of RCAS is that the hardware platform can be upgraded to faster and more powerful platforms as needed. "We know that two to three years from now, we won't be delivering 486s into the field," Stemley said. "It'll be a better piece of equipment."

SCO has already made important inroads at large commercial sites such as the NASDAQ stock market, said Rikki Kirzner, a principal analyst at Dataquest, Inc. in San Jose, Calif.

Its biggest challenge is breaking out of its image as a small-site supplier, she said. Other big SCO sites, each with many hundreds of SCO units, include McDonald's Corp., Goodyear Tire & Rubber Co. and Taco Bell Corp. Some of these sites attach just a few client PCs to each SCO server; others use SCO workstations as stand-alone units.

Despite its goals for high-end servers, SCO is likely to continue building its $164 million-plus business on its success as a provider of small servers for packaged applications, McGuckin said. "Their strength will be multiuser support for small mom-and-pop shops, as well as for large sites with replicated applications," he said.

NCR doubles RAID-5 speed

Phase 2 line writes faster

By Stephen P. Klett Jr.
WICHITA, KAN.

NCR Corp.'s Microelectronic Products Division plans to announce today availability of its second-generation disk-array subsystem for Unix-based networks.

According to the company, the NCR 6298 Phase 2 product line improves read/write performance in RAID-5 mode by nearly 100% over the original Phase 1 product, which debuted last September.

The NCR 6298 redundant arrays of inexpensive disks (RAID) family ranges in capacity from 2G to 21G bytes and supports NCR's Unix System V Release 4, IBM's AIX and Microsoft Corp.'s Windows NT.

The Phase 2 line sports a new disk-array controller based on a 40-MHz CPU from Motorola, Inc. aimed at improving performance lags associated with RAID-5. The controller can manage four ranks of up to five drives and support RAID Levels 0, 1, 3 and 5 simultaneously.

When compared with Phase 1's 25-MHz controller, Phase 2 offers up to 98% faster write performance in RAID-5 mode, according to NCR benchmarks. The controller also supports hot swapping, or the ability to replace a failed drive without powering down.

Analysts said Phase 2 was a strong step for NCR toward alleviating some of users' performance concerns associated with RAID-5; however, they said price was still the major issue for most shops. "Today, nearly everyone offers RAID products," said James Brennan, an analyst at WorkGroup Technologies, Inc. in Hampton, N.H. "The only way vendors can truly differentiate themselves is through pricing, which NCR is doing with this announcement."

RAID levels

RAID-0: Data striping without parity.
RAID-1: Data duplication on mirrored drive.
RAID-3: Parallel transfer of data with dedicated parity.
RAID-5: Parity data spread across all disks in rank.

Using AIM III, a standard benchmark in the Unix industry, NCR tests showed that users running I/O-intensive applications in RAID-5 mode could reduce their runtime by more than 40%.

The Phase 2 line is targeted at high-end users with write-intensive applications, while Phase 1 is aimed at entry-level users with storage needs below 15G bytes.

The Phase 2 line is slated to ship next month at prices starting at $26,891 for 5.25G bytes of storage — a cost of roughly $5.12 per megabyte. The high-end 21G-byte system costs $55,976, about $2.67 per megabyte. The line will also be available for OEM customers at the corporate level.

NCR also announced price cuts of more than 50% on the NCR 6298 Phase 1 family. For example, a 2G-byte Phase 1 system starts at $14,000. Previously, the base configuration cost $33,884.

Phase 1 owners can upgrade to the Phase 2 line by swapping in the new controller board for $9,950.

NCR officials said the company will release a 2G-byte drive in October that will double the line's capacity. An NCR official said a 40G-byte Phase 2 system would cost roughly $100,000.

Excalibur

CONTINUED FROM PAGE 47

American Memory project for searching through books and articles without knowing precise names, spellings or file locations.

•Task Force Russia, sponsored by the Decision Systems Management Agency, uses the document imaging technology to process records from the former Soviet Union, searching Russian and English documents related to U.S. prisoners of war.

•Employees at Ultramar, Inc. use the fuzzy logic capabilities of PixTex/EFS to access safety information about hazardous materials, even when they do not know the materials' specific names.

•The law firm Pillsbury, Madison & Sutro uses it to assemble cases from legal documents in huge databases.

New York-based Pfizer, Inc. chose PixTex/EFS to store and retrieve drug "recipe" images used to answer questions from Pfizer manufacturing plants and distribution centers. Previously handled by a manual process involving microfilm, Pfizer now scans in 500,000 images for fast, automated retrieval.

Peter Reimann, a Pfizer data management group coordinator, said the forgiving nature of "fuzzy searching" is important because of scanning errors in the database and spelling errors by users. "Even Dan Quayle could use this system," he said.

PixTex/EFS runs on Unix and Digital Equipment Corp. VMS servers and workstations and supports PC, Macintosh and X Window System clients. Its price ranges from about $2,500 to $12,000 per user.

Hewlett Packard [illegible] systems helped Spalding's [illegible] four times faster [illegible]

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— Bard White, Spalding's CIO and Worldwide Director of MIS

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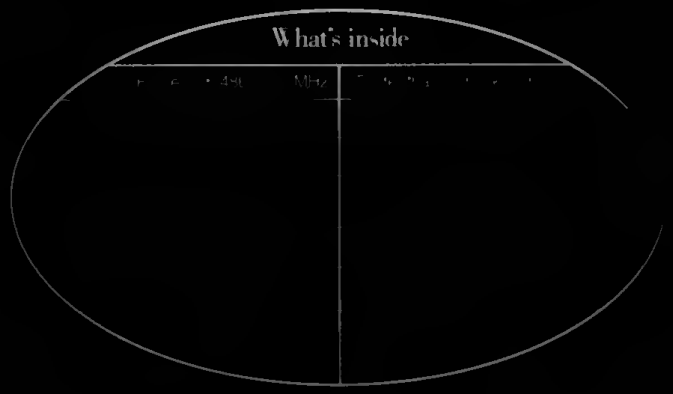

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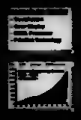

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Corel Corp. has introduced CorelDraw 3 for Unix.

The product combines CorelDraw, a vector-based illustration program, with image editing and painting, business charting and presentation modules

CorelDraw features include on-screen text editing, editable preview; unlimited layers, enhanced special effects and improved precision, the company reported

Cross-platform compatibility enables users to share files between Windows and Unix environments

CorelDraw 3 for Unix costs $595.

▶ *Corel*
The Corel Bldg
1600 Carling Ave.
Ottawa, Ontario CDK1Z8R7
(613) 728-8200

Performance Software, Inc. has announced the availability of its V-Series of software quality tools on Digital Equipment Corp.'s Alpha AXP platform.

According to the company, the V-Series tools include V-Test, a fourth-generation language automated testing environment; V-Timer, a response time analysis tool for users of interactive applications that monitors and reports actual response, service and transmission times; and Video, a terminal monitoring and recording system.

V-Test prices start at $5,000, V-Timer at less than $5,800 and Video at $2,500.

▶ *Performance Software*
26 Parker St.
Newburyport, Mass. 01950
(508) 462-0737

Emerald Systems Corp. has announced XpressServe, a high-performance network file server-based backup software product.

The product is a NetWare Loadable Module, and, according to the company, it has a NetWare-like C-Worthy interface on the workstation, a server console interface and a DOS command line interface to permit job submittal and status from any workstation in the server or the network.

XpressServe starts at less than $800.

▶ *Emerald Systems*
12230 World Trade Drive
San Diego, Calif. 92128
(619) 673-2161

Network Peripherals, Inc. has introduced the Ethernet In, FDDI Out (EIFO) client/server switching hub, an Ethernet Fiber Distributed Data Interface (FDDI) switch created to improve client/server performance with high-speed networking

The product switches local-area network traffic between Ethernet and 100M bit/sec. FDDI. According to the company, servers can deliver 10 times more data than is possible with an Ethernet switch, when connected to 100M bit/sec. FDDI via the EIFO.

Pricing starts at $7,495 for an EIFO equipped with a single-attached unshielded twisted-pair FDDI uplink. The dual-attached fiber connection version costs $8,995.

▶ *Network Peripherals*
1371 McCarthy Blvd.
Milpitas, Calif. 95035
(408) 321-7300

IBM Technology Products has announced the 14.4/14.4 Data/Fax modem and the 2.4/9.6 Data/Fax modem, two PC fax/modem cards based on the Personal Computer Memory Card Interface Association standard.

The modems support AT and Fax Group 3, Class 1 and 2 commands that enable third-party fax and data applications software, the company said.

Prices start at $299

▶ *IBM Technology Products*
Route 100
Somers, N.Y. 10589
(914) 766-1900

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SYNERNETICS TAKES AIM AT SWITCHED FDDI MARKET, 58
INTEROP PRODUCT ANNOUNCEMENTS, 59

CC:Mail, Microsoft Mail top E-mail list

By Lynda Radosevich

■ As PC-based electronic-mail market leaders, Lotus Development Corp.'s CC:Mail and Microsoft Corp.'s Microsoft Mail have a lot in common: Large-size customers said neither is ideal for enterprisewide service.

"CC:Mail is a great PC product, but it's not robust, it doesn't have great administrative, management or diagnostic tools, and I'm not very happy with the support," said Lorna Pauls, manager of office systems at Alcan Aluminum, Inc., a 40,000-employee aluminum products firm headquartered in Montreal.

closer look
E-mail software

"Administering a [Microsoft] Mail database is like trying to assemble a puzzle inside of a black box: You just can't see how things fit together and work," said Greg Scott, computing services manager at the College of Business at Oregon State University in Corvallis, Ore.

Despite the complaints, the two packages are the top choices for information systems managers who are choosing a standard PC-based E-mail platform. For those managers, it is the differentiation between the two that counts when choosing a corporate standard for local-area network E-mail.

Basic elements

The basic pieces of PC-based E-mail include the following:
- Client software — what the end user sees on his desk.
- A post office or a database that holds messages in "mailbaxes" or queues messages to be sent to other post offices. This typically resides on a stand-alone DOS-based PC attached to the LAN.
- Directories within post office database that contain the addresses of users on the system.
- Administration tools for adding users.

Other key components include the following:
- A router, which often runs at the machine that has the post office, for transporting messages and directory information between post offices and to remote users.
- Gateways or "backbone" software that translates messages to other E-mail systems.

For example, CC:Mail has the larger installed base, which means it has more products available from third-party vendors. That includes gateways, which translate the messages from one E-mail system to another, and administration tools. Also, it is the choice for users who need to run E-mail across Windows, DOS, Unix, Macintosh and OS/2 platforms.

"When I made my choice four years ago, CC:Mail was the de facto standard. Now we're in the process of setting up a worldwide backbone, and we just want to hook up what's already there," Pauls said. The platform support and gateways help do that, she added.

Microsoft Mail is often the choice for companies migrating from IBM's Profs/OfficeVision products because the Profs/Mail gateway is the most robust, Microsoft Mail users said. One issue for many users migrating from Professional Office System (Profs) is the ability to do group calendaring, and Microsoft is offering a new Profs/Mail calendaring gateway.

Additionally, Microsoft Mail is the default choice for some because they have chosen to standardize on the Windows platform and the Windows product suite.

For instance, Allied Signal Corp. standardized recently on Microsoft Mail in part because it was one piece of the overall Microsoft solution, said Charlie Stoner, computing services analyst at the firm's aerospace division in Tempe, Ariz.

Connection choices

Other distinguishing features include connectivity options. Both packages support X.25 and dial-up leased-line options for connecting mail routers over wide areas. CC:Mail can also use the following network protocols for connecting CC:Mail routers: Transmission Control Protocol/Internet Protocol (TCP/IP), Novell, Inc.'s NetWare IPX/SPX, Banyan Systems, Inc.'s SPP and IBM's Advanced Program-to-Program Communications.

Support for these networks is important for companies that want to leverage their existing investment in communications networks, especially IBM's Systems Network Architecture and TCP/IP, said David Ferris, editor of the "Ferris E-mail Analyzer," an E-mail newsletter in San Francisco.

Users of each have their own likes and dislikes, but they sound a common call for better administration and directory functions.

For instance, at GD Searle in Skokie, Ill., Keith Addison, manager of network integration, said he would like to see CC:Mail move its administration services to non-DOS platforms. Once a week, the pharmaceutical firm reorganizes the CC:Mail address database to clean up the fragmentation that occurs when records get added and deleted. The 40,000-entry database takes two hours to reorganize, and if the network has a glitch, the DOS-based servers have no error-checking capability, Addison said.

Post office problem

Better CC:Mail directory tools are another item that Addison said he wants to see on Lotus' action list. For instance, he would like to see Lotus improve the method for transferring users from post office to post office. That is because it makes sense to switch an end user's information to the nearest CC:Mail "post office" (address server) when that user switches location.

On top

In a January 1993 survey of 50 large companies with multiple E-mail packages, 32% said CC:Mail is their fastest growing E-mail system and 20% picked Microsoft Mail. The survey was completed by Forrester Research, Inc. in Cambridge Mass.

The idea is to avoid having messages making too many "hops" between servers to get to and from the end user. However, user information must now be extracted to an intermediate file and imported to the new post office. As a result, the password is lost, and the process is "labor-intensive," Addison said.

At Chevron Corp., the main challenge in running Microsoft Mail is keeping the gateways up, said Jim Lisiak, a systems engineer at Chevron Information Technology Co. in San Ramon, Calif. That is because the Microsoft Mail gateways typically run on DOS-based machines.

"Anytime you run an automated program 24 hours a day on a typical DOS platform, there are lots of points of failure," he said.

Microsoft Mail offers gateways on OS/2 machines running Version 1.3, but that version is unstable. Chevron uses DOS-based remote control software to help manage the gateways from a central site, and that software is not available for OS/2 Version 1.3, Lisiak said.

Lotus and Microsoft said they plan to address some of the shortcomings. Lotus plans this fall to release an updated version of its automatic directory exchange software that will allow offsite administration of the post offices, said Andy Watts, director of CC:Mail product management.

Lotus will also move its router — the piece that directs messages between CC:Mail post offices — to Unix platforms by early next year and to NT "if it is stabilized" then, Watts said. The router will also support the 1988 version of the X.400 messaging protocol, which is an important standard for exchanging messages among organizations.

Microsoft's plans include a messaging server based on its Windows NT operat-

E-mail, *page 58*

YOUR COSTS

	50	1,000	6,000
Installation costs			
E-mail software products	$5,000	$70,000	$600,00
Message stores	$8,000	$160,000	$1,600,000
Message router PCs	$2,000	$4,000	$124,000
Dial-in PC gateways	$2,000	$4,000	$28,000
Fax gateways	$3,000	$39,000	$285,000
Public E-mail gateways	$600	$600	$1,800
Profs/OfficeVision gateways		$4,000	$4,000
SMTP gateways			$2,000
TOTAL INSTALLATION COSTS	$20,600	$284,600	$2,644,800
Annual operating costs	$8,500	$170,000	$1,020,000
Local PC network support		$20,000	$120,000
Central technical support	$1,250	$25,000	$300,000
Communications	$175	$3,500	$21,000
Public E-mail service	$2,678	$36,608	$343,824
Product maintenance			
TOTAL OPERATING COSTS	$12,603	$255,108	$1,804,824
TOTAL INCREMENTAL COSTS			
Three-year costs	$58,409	$1,046,824	$8,099,272
Cost/mailbox/year	$389	$349	$448

Source: Ferris Networks, Inc., San Francisco, Calif.

WHISTLING UNDERWATER.

WALTZING TO RAP MUSIC.

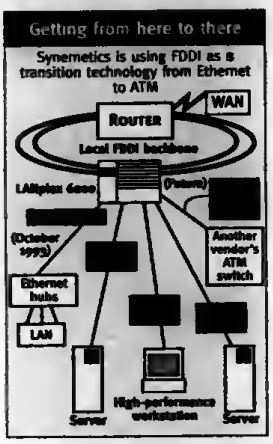
Synernetics targets switched FDDI market

By Joanie M. Wexler
NORTH BILLERICA, MASS.

Users wading through the pool of choices for escorting their existing networking equipment into an era of very high-speed communications gained another option early this month from the original local-area network switching vendor.

Synernetics, Inc. said it will ship in October a big brother to its existing LANplex 5000 Ethernet switch aimed at migrating users to Asynchronous Transfer Mode (ATM) networks using switched Fiber Distributed Data Interface (FDDI), a 100M bit/sec. LAN, as a stepping-stone.

Switched FDDI would give users the ability to dedicate 100M bit/sec. of LAN bandwidth to a high-performance workstation, server or LAN. This parallels the way many companies have chosen to breathe more life into their 10M bit/sec. Ethernet networks using the Synernetics LANplex 5000 and switches from Kalpana, Inc., Alantec, Lannet, Inc., Artel, Inc. and other vendors.



Switched support

Synernetics' forthcoming LANplex 6000 builds on its predecessor both by accommodating switched FDDI, planned for availability in mid-1994, and by making room for an eventual ATM interface to separate, stand-alone ATM switches. It includes a 3.2G-byte backplane to accommodate switched FDDI, ATM and integrated Internet Protocol routing.

However, an ongoing debate questions whether FDDI is a reasonable interim technology to ATM, given that the two technologies are unrelated and require different expertise. In addition, more familiar 100M bit/sec. Ethernet technology is on the horizon.

"We think FDDI is a good migration path to ATM," said Dan Leonard, director of information systems technology at Cadence Design Systems, Inc.

Leonard, who expressed interest in the concept of switched FDDI, said his company runs hundreds of Sun Microsystems, Inc. SPARCstations "and a single workstation can consume 15% of an FDDI. When you build a workgroup of these, an FDDI can quickly become fully consumed," he said.

Paul Callahan, a senior analyst at Forrester Research, Inc. in Cambridge, Mass., though, predicted that "for the next three years, at least, the hub business will feed off of switched Ethernet."

Callahan deemed the switched FDDI market very small, mainly because "there are millions" of relatively lower-speed PCs that would not be able to fill an FDDI pipe compared with "just hundreds of thousands" of more FDDI-appropriate higher-performance workstations.

The vendor itself hit the bullet and acknowledged that today, few customers strain even a shared FDDI network. However, the LANplex 6000 is meant "as a network infrastructure product that can accommodate new technologies coming down the road," explained David Tolwinski, vice president of marketing.

In addition, "what FDDI has going for it is that it's the only game in town today for backbones," Callahan said.

To date, the only existing competitor to the LANplex 6000 is the Digital Equipment Corp. GigaSwitch. Synernetics has not yet priced its LANplex 6000 FDDI switching module.

E-mail choices

CONTINUED FROM PAGE 57

ing system. The server is based on the 1988 X.400 messaging and X.500 directory protocols.

What may have an even greater influence on user decisions in the future are the strategic E-mail plans of both companies. Lotus' strategy is to provide mail servers that are independent of the network operating system and to retain a cross-platform strategy, Watts said.

Other aspects of Lotus' plans include tight integration with Notes groupware software, although analysts indicated that CC:Mail's links to Notes are not much stronger than other Microsoft Mail links. Furthermore, E-mail vendor Beyond, Inc. offers a mail client that can access information from Notes databases better than CC:Mail or Microsoft Mail.

Microsoft has outlined an architecture in which the messaging services are closely linked to the network operating system: namely, future versions of Windows. The advantage is tight integration with the operating systems, which will use application programming interfaces to "hook" into directory services, back-end databases and other vendors' messaging transportation services. However, the architecture is what some users call "Windows-centric."

Interop '93 unveilings

Products demonstrate vendors' commitment to SNMP systems, interoperability across systems

By Elisabeth Horwitt
SAN FRANCISCO

"Putting all the pieces together" was the unofficial theme of last week's Interop '93 August show here. Particularly promising to network and systems administrators was further evidence of vendors' willingness to work with one another in order to ensure management and interoperability across the typical corporate hodgepodge of multivendor client/server and network systems.

In the past two weeks, several network equipment vendors announced offerings that enable their hubs and switches to be managed by Simple Network Management Protocol (SNMP) systems. This expands on SNMP's potential to enable users to manage a variety of vendors' networking products via a single popular SNMP-based platform, such as **Hewlett-Packard Co.**'s OpenView.

Introductions included the following:

▶ **Lannet, Inc.** in Huntington Beach, Calif., introduced Multiman, a product that reportedly enables its intelligent hubs to be managed by both Unix-based SNMP systems such as OpenView and **Sun Microsystems, Inc.** SunConnect's SunNet Manager, as well as Windows-based SNMP systems such as OpenView for Windows. The vendor is also completing a suite of Remote Network Monitoring-compatible LAN diagnostic tools that will sit on Lannet hubs and report LAN traffic and error data to an SNMP system.

▶ **Hughes LAN Systems** announced the availability of Hughes 20/20 Enterprise Hub Manager, a PC-based system for managing Hughes hubs via SNMP. The product's features include a graphical user interface and Auto-Learn, which is said to automatically discover hubs out there. It operates within the OpenView for Windows environment and is priced at $2,995.

▶ **Concord Communications** announced the integration of its Trakker LAN diagnostic system with HP's OpenView.

▶ **Motorola Codex** announced the 9000-UX Open Management system, another HP OpenView-based product that is said to support SNMP in a Unix and X Window System/Motif environment. The 9000-UX will provide management for Motorola Codex Periphery Routing platforms. Available by year's end, it is priced from $20,000 to $60,000.

▶ **Network Security Systems, Inc.** in San Diego announced LANSafe II for Novell, Inc.'s NetWare Management System (NMS). The SNMP-based system's snap-in power management application reportedly enables NMS users to interactively manage and control Network Security's uninterruptible power supplies. The product is said to monitor and log power conditions. It also does automated systemwide power testing, remote shutdown and reboot and unattended NetWare orderly shutdowns. It costs $199.

▶ **Standard Microsystems Corp.** announced EliteView/OV, a Unix-based network management application that enables OpenView systems to manage Standard Microsystems' Elite Switching Hub ES/1. The company also announced that its EliteView network management applications will be able to exchange data with popular spreadsheets such as Microsoft Corp.'s Excel, using Microsoft's Dynamic Data Exchange.

▶ **Tally Systems Corp.** in Hanover, N.H., announced that it will soon offer a snap-in module for Novell's NMS as a standard feature of its NetCensus product. NetCensus is said to provide detailed inventory data on hardware and software components, including brand names and serial numbers.

▶ **Peregrine Systems, Inc.** in Carlsbad, Calif., last week enhanced its network management offering, Peregrine Network Management System, with a variety of features. These include an interactive topological map; automatic inventory population/problem ticketing for Transmission Control Protocol/Internet Protocol and IBM Systems Network Architecture (SNA) networks; and a neural network-based expert system for retrieving text.

Broadband news

On the broadband wide-area network front, **Sprint Corp.** announced availability of its Asynchronous Transfer Mode service.

Hypercom, Inc. announced that its integrated Enterprise Network family of network access nodes will now support SNA traffic over a variety of carriers' frame-relay services. The carriers include AT&T, US West, Inc. and Sprint. Hypercom's frame-relay implementation will include congestion control, multicast and global addressing features.

Standard Microsystems announced support of Novell's IPX protocol on its switching hub and what is said to be the first High Speed Serial interface (HSSI) module for a switching hub, enabling customers to create 45M bit/sec. T3 links across metropolitan and campus-area networks. The single-port Elite Switching Hub ES/1 module will link LANs over a public network at speeds ranging from 56K to 45M bit/sec., using HSSI for high-speed connections and RS-449 for speeds of up to 10M bit/sec., the company said.

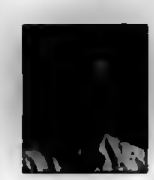
The RS-449 port has an inverse multiplexer capability for combining up to six T1 traffic streams into one very high-speed link. The HSSI module is priced at $6,950.

TYPING WITH BOXING GLOVES.

MOVING MISSION-CRITICAL APPLICATIONS TO CLIENT/SERVER.

David Coursey

In need of Novell



Novell is to networking what Microsoft is to the PC desktop, but with one important exception: While Bill Gates has Lotus, Borland and (yipes!) a newly vigorous WordPerfect to watch out for, Novell has little serious opposition. That's a problem because customers need better solutions and a better networking partner than Novell is able to provide.

The name Novell doesn't conjure up oceans of respect in corporate boardrooms where NetWare is viewed more as a necessary evil — and a hard-to-use one at that — than a major strategic platform. And that is if Novell gets any attention at all. More often, Novell is treated like the network equivalent of a public utility — absolutely essential but not worth spending much time thinking about unless you are the one who has to make it work day to day.

The glacial acceptance of NetWare 4.0 — even Novell acknowledges it is selling slowly — shows that NetWare is easy to sell only when the focus is on the most basic services such as printer and file sharing. NetWare sales bog down in a seemingly endless sales cycle when Novell reaches for the data center. Few corporate IS executives are really comfortable with Novell extending its reach, no matter how inevitable it may seem.

Obvious choice

As for people who'd like to switch, the question is: To what? Banyan lost the war quite some time ago, Microsoft isn't yet a credible networking vendor, Apple isn't a real option for most people, and Artisoft is but a blip on Provo's threat-detection radar.

So who is going to step forward and help us create a truly user-centered, task-based, desktop-centric computing environment? Who is going to create an applications environment that really leverages the network?

Novell is the obvious answer, but only if you believe Novell can really improve its level of play fairly quickly. The biggest concern right now is at the top. Ray Noorda seems more and more distant from the business at hand, which both insiders and outsiders attribute to his advancing age. Yet, while recognizing the need to step aside someday, Noorda doesn't seem in a big hurry to do it.

He recently told reporters that succession has been in the planning stage for three years, but he couldn't point to any specifics, save that he would consider an outsider as his replacement at the helm of Big Red.

Worse, after proclaiming he is healthy and that his pacemaker is working fine, Noorda recently told analysts that the company is quite ready if an emergency should occur. That sounds like a man with no plans to go anywhere in a hurry.

> Novell needs to convince the world that NetWare really has a future as the open platform for corporate enterprise networks.

The Novell board cannot be expected to step in and speed Noorda along very much, leaving us with a case of management gridlock. The best option would be for Novell to hire an outsider with experience running a billion-dollar company who could come in as chairman and CEO, with Noorda becoming chairman emeritus or something. If this doesn't happen soon, Wall Street, which has already hit Novell's shares pretty hard, needs to force the question.

First things first

For the new leader, the first task would be streamlining the management structure and reorganizing to clarify roles and responsibilities. At the same time, Novell needs to develop a real vision for how its customers will be computing five or 10 years from now and start building in that direction.

Customers need to know how their NetWare infrastructure should evolve and which technologies they should invest in. Then Novell has to deliver on its pronouncements.

This will be new for Novell, which has traditionally addressed the market by facing its customers with its back to the future. That was great if you needed some new network plumbing, but it has kept Novell largely out of the next-great-advance business, which Microsoft seems to own.

While not a serious threat to Novell today, Microsoft is nothing if not tenacious, and Novell can expect to see its dominance whittled away if it doesn't take immediate steps to win the hearts and minds of not only network administrators but also their bosses, all the way up the corporate ladder.

Novell needs to convince the world that NetWare really has a future as the open platform for corporate enterprise networks. To do this, Novell needs to develop a clear strategy, communicate it effectively (Microsoft does both well) and deliver it in a timely manner.

With its AppWare client/server strategy, ownership of Unix and its installed base, Novell has an excellent base to work from. But it also needs the leadership in both the executive suite and in customers' minds to make this happen, and that, today, is where Novell comes up most critically short.

Coursey is editor of "P.C. Letter," a San Mateo, Calif., industry newsletter. His MCI Mail address is 558-4460.

Systems Strategies, Inc. has introduced Systems Strategies Express Peer-to-Peer for Unix, a real-time software solution for linking Unix systems to IBM Application System/400s.

According to the company, Express Peer-to-Peer is a bundled communications package that can access an AS/400 from a Unix system using 5250 terminal emulation; execute remote job submissions; perform bidirectional file transfer; and print documents on both Unix and IBM printers.

Support is provided for combined Transmission Control Protocol/Internet Protocol and IBM's Systems Network Architecture Advanced Peer-to-Peer Networking.

Express Peer-to-Peer for Unix costs $20,000 for point-to-point connections and $35,000 for the networked version.

▶ *Systems Strategies*
1 Penn Plaza
New York, N.Y. 10119
(212) 279-8400

Chipcom Corp. has announced the Ondemand Network Control System (NCS) software package, including support for Digital Equipment Corp.'s Polycenter and Hewlett-Packard Co.'s HP OpenView network management platforms.

According to the company, the product is a graphical application package for managing various Chipcom network devices.

Through a central workstation, Ondemand NCS Version 2.0 offers point-and-click control of all Online System Concentrators, bridges, routers, ports and modules.

Ondemand NCS can identify an end station, port characteristics, a concentrator and an Internet Protocol address with a Port Database feature. A Port Grouping feature allows users to add, remove, enable and disable ports within a module, the company said.

Ondemand NCS Version 2.0 costs $4,495.

▶ *Chipcom*
Southboro Office Park
118 Turnpike Road
Southboro, Mass. 01772
(508) 460-8900

3Com Corp. has announced the LinkBuilder Multi-Services Hub (MSH) and NetBuilder II bridge/router, a bundled solution.

The bundle consists of the LinkBuilder MSH platform that can support Ethernet, Token Ring and high-speed services such as Asynchronous Transfer Mode and the NetBuilder backbone for Ethernet, Token Ring and Fiber Distributed Data Interface, the company reported.

The four-slot NetBuilder II costs $19,190, and the eight-slot NetBuilder II costs $21,690.

▶ *3Com*
5400 Bayfront Plaza
Santa Clara, Calif. 95052
(408) 764-5000

Shiva Corp. has announced LanRover/E 2.0, an upgrade to LanRover/E, its enterprisewide, multiport remote networking server.

Support for Transmission Control Protocol/Internet Protocol has been added to LanRover/E for NetWare and LanRover/E for AppleTalk Remote Access.

According to the company, additional enhanced management capabilities and shared dial-out, cost-effective modem pooling are included.

The product was designed for enterprisewide networks whose users require access to databases, file servers, electronic mail and other resources on Ethernet local-area networks, the company reported.

Client software, management software and a dedicated remote networking server are included.

Prices range from $2,499 to $3,499.

▶ *Shiva*
Northwest Park
63 Third Ave.
Burlington, Mass. 01803
(617) 270-8300

Network Dimensions, Inc. has announced GrafBase, a software package for visual display and documentation of communications networks.

The product is a graphical database designed for configuration management and network information. GrafBase's features provide users with flexibility and control in accessing, maintaining, updating and presenting network information from PCs, according to the company.

GrafBase can consolidate and manage network data; produce network presentations and reports; and configure and track network configurations.

The ability to import and export network information through a text file is also provided.

The product runs under Windows on an IBM PC-compatible machine.

GrafBase costs $750 with options for geographical map data.

▶ *Network Dimensions*
Suite 312
5339 Prospect Road
San Jose, Calif. 95129
(408) 446-959

Product shorts

Moda Systems, Inc. has announced Via, plug-and-play wireless connectivity software (middleware) for mobile computer users. By employing local- or wide-area radio links, users can access existing software applications residing on the host system by using off-the-shelf portable devices, the company said. The product can be used for applications such as database inquiry or order processing. Cost: Prices range from $1,295 to $1,595. Moda Systems, Cambridge, Mass. (617) 494-0402.

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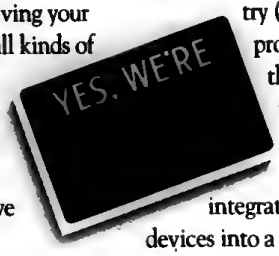

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DEC focuses Rdb on high end

By Craig Stedman
BOSTON

With its engineering budget now more limited after sharp cutbacks during the past year, Digital Equipment Corp. is concentrating development of its Rdb relational database on high-end production systems functionality rather than the department or workgroup levels.

Digital executives said at a recent Rdb conference here that the other main database investment going forward will be integrating multiple databases into a single logical view, in keeping with the company's new emphasis on software frameworks over individual applications.

"We continue to make a significant investment in database products, but we're re-engineering what our focus is for those investments with the move toward distributed computing," said Chuck Rozwat, group engineering manager for database systems at Digital.

Also playing a role, analysts noted, is the ongoing reduction of the company's spending on engineering. Digital cut its research and development budget by 13% in the fiscal year that ended in early July; fourth-quarter spending was down a whopping 24% in that area.

Chris Christiansen, an analyst at market research firm International Data Corp. in Framingham, Mass., said Digital's senior management has made it "quite clear that any additional R&D efforts would have to be cost-justified quite quickly" in order to be funded.

Robert Palmer, Digital's president and chief executive officer, appears to be concerned mainly with driving Alpha AXP system sales, using outside software if necessary, Christiansen added. "His [Palmer's] primary goal is to make Alpha successful, not to make Rdb successful," he said.

> One analyst said Robert Palmer's primary goal is to make Alpha successful.

Rozwat said Rdb development will now be targeted at "production attributes" such as availability, reliability and security, plus support for larger databases and better performance. Meanwhile, Digital hopes to augment Rdb with DB Integrator, a package due in December that is supposed to tie together Rdb and outside databases.

Rdb users who attended the conference reacted positively when they heard of Digital's development plans for the database. These call for two new releases tied to the OpenVMS operating system this year and then initial versions for DEC OSF/1 and Microsoft Corp.'s Windows NT next year.

"Concentrating on increasing the performance of production [with Rdb] definitely would help," said Mitchell Pielech, database administrator at Colonial Management Associates, Inc.'s information services division in Boston. Pielech said he is "comfortable" with Digital's plans.

"I think they're really moving ahead and getting a lot of things out," added Hilary Wright, senior systems analyst at *The Boston Globe*.

No need to switch

The *Globe* looked at switching to either Oracle Corp. or Sybase, Inc. products for its production systems database but stuck with Rdb after deciding its performance matched the others, Wright said.

AFSA Data Corp., a Long Beach, Calif., processor of student loans, has had no major problems with a "very complex" 61G-byte Rdb database it brought on-line in May. "I was pretty pessimistic, but so far it's been chugging along," said William Doernbach, AFSA's database administrator.

Analysts said they believe, however, that Digital needs to move Rdb to competing hardware platforms to get enough revenue to keep up with the engineering investments of other database vendors [CW, Aug. 23]. The company thus far has not committed to doing any outside ports.

New image on way

Digital has taken to calling itself "the open client/server company" as it switches its software development focus from applications to integration frameworks. But the company admits it has a ways to go before getting users to accept that description.

"I don't know if we're starting behind [in client/server], but we have a lot to do in sort of redefining our image, and that's across the board," said Rose Ann Giordano, Digital's vice president of production systems software, in an interview at the Rdb conference in Boston.

Client/server computing is one of the two main pillars of Digital's strategic blueprint, along with Alpha AXP, and the software frameworks are supposed to provide an architecture and tools for blending third-party and custom applications in a multivendor environment [CW, Aug. 9].

Giordano did not comment in detail on the company's plans for bringing the framework concept to fruition. "A lot of the individual pieces exist, but we're putting them together and making it more of a horizontal solution," she said, without providing a shipment schedule.

Rdb should be "the heart" of a so-called information framework that also will encompass the Application Control and Management System transaction processing monitor and Reliable Transaction Router routing software.

Horse club races for payoff from database overhaul

By Joanie M. Wexler
LEXINGTON, KY

When The Jockey Club's computer operations manager, Robert A. Burch, curled up with a mystery novel recently, he discovered that his own organization's static database had found its way into the plot as an obstacle to the good guys' nabbing the murderer.

Burch sheepishly concluded that his 40-person information systems group had launched its database overhaul project none too soon.

The worldwide data supplier for the thoroughbred horse breeding and racing industry is immersed in an IS and business process revamp that merges the data buried in its core mainframe-based nonprofit pedigree and registry business with that in its newer, money-making data service subsidiaries.

The seven-figure effort hinges on Hewlett-Packard Co. HP 9000 Unix servers and Sybase, Inc. relational databases, and it is the second-largest expenditure in The Jockey Club's near-100-year history. The first was the purchase of its headquarters.

Rick Dickinson

The Jockey Club's Nicholas D'Altilio (left) and Robert Burch *needed a new database to store information on more than 2 million thoroughbreds*

The impetus for the overhaul was that Jockey Club database subscribers were running into the same cross-search frustrations as the mystery novel protagonist: Rigid data structures and separately designed systems for the various business subsidiaries were putting up brick walls to those who might want to search for information using keywords other than a horse's name.

"So far, the businesses are integrated; the systems are not," said Nicholas D'Altilio, director of MIS. This is incongruous, he said, because "as we evolve profit-making subsidiaries, all the data is related."

The goal of the new project, which includes retiring The Jockey Club's IBM 3081K mainframe by the second half of 1995, is to separate the data from the application so that it is accessible across businesses. The organization is creating a single logical database spanning businesses and directed by one data model, D'Altilio said.

The Jockey Club's original nonprofit service is to provide horse pedigree and breeding information from its hierarchical mainframe database, which today stores 2 million thoroughbred pedigrees. The company collects data on births, blood types, horses' markings and other telltale information for identifying an individual animal. The goal is to give breeders, owners, buyers and racing aficionados dial-up or dedicated access to accurate research.

Also, one of The Jockey Club's for-prof-

Horse club, *page 68*

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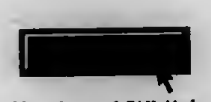

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Potential labor strike stalls conversion

Downsizing project on hold at Philadelphia Newspapers

By Mark Halper
PHILADELPHIA

There may be no better reminder than a labor dispute that human factors can disrupt a technology project, as Philadelphia Newspapers, Inc. is discovering.

The owner of *The Philadelphia Inquirer* and *Philadelphia Daily News* has effectively put its mainframe-to-minicomputer downsizing project on hold as management, including Director of Business Systems Al Vaccaro, focuses on a possible Sept. 1 walkout by any or all of 10 unions.

"It's very difficult to make progress with the system right now," said Vaccaro, who earlier this year began moving the publishing company's business and advertising operations from an IBM 3090 to a Hewlett-Packard Co. HP 3000 minicomputer.

At a time when Vaccaro and his 16-person nonunion development staff should be concentrating on writing code for HP/MPE programs and connections, they are instead preoccupied with what to do in the event of a strike. As of presstime, unions and the company were far apart in negotiations, and a walkout was likely. Calls to several of the unions were not returned.

Management is working with the information systems developers in strike preparation, delving into such charged issues as whether to cross picket lines when such action would pose ethical and even safety questions.

"Some people may not cross the picket line," Vaccaro said. If that is the case, IS progress may not be completely impeded, as Vaccaro noted: "I could have them work from home."

What is more, the IS development staff is also preparing to take over certain unionized operations during the course of strike. For instance, some may be asked to run the company's data center should the 12 unionized data center operators walk out.

The developers are also now devising a program that would credit subscribers who do not receive issues if delivery shuts down or becomes less effective.

Wage dispute

Further complicating matters, one of the issues on the negotiating table — higher pay for support workers who are trained on the client/server system — ties directly to the company's technology shift and must be resolved before the papers implement the new technology.

Vaccaro said the chances are quickly vanishing of the company's implementing its maiden program catover by the original October time frame. That conversion, from a Dun & Bradstreet Software accounts payable program to a Collier Jackson Corp. accounts payable package, may well slip into next year, Vaccaro said.

That means other planned program moves, which are scheduled to run through 1995, would also kick in at later dates. Those include migrating to a Collier Jackson general ledger program, a Neasi-Weber International Admarc advertising program and Cyborg Systems, Inc.'s human resources program.

While the labor dispute is stalling the client/server effort, problems with the technology itself have also caused delays.

"It's never quite as easy as it all sounds on paper," he noted. A Collier Jackson load program intended to automatically transfer accounts payable data from the old system to the new has misfired, for instance, contributing about a month's delay, Vaccaro said.

Although the timing of the move to a client/server operation may now be in question, the company's motivation for undertaking such a massive technology shift is not, at least in Vaccaro's eyes.

Philadelphia Newspapers first began contemplating a technology shift around 1990, when it discovered that it was pushing the capacity of its 3090. Among the factors that steered Vaccaro away from the mainframe was what he considered exorbitant upgrade and maintenance costs by mainframe software vendors such as Computer Associates International, Inc. and D&B Software.

In a comparison of mainframe to client/server software costs, Vaccaro noted that D&B Software charges $45,000 per year in maintenance for an accounts payable/general ledger combination. Collier Jackson will charge about $15,000 per year for its comparable package.

No immediate savings

While Vaccaro said he expects to save costs in the long run, he does not expect those savings to kick in immediately.

His seven-year cost projection shows expenditures on the HP environment at about $13.4 million, compared with what would have been $14 million on IBM, not including payroll expenses. After the first seven years, he said he anticipates a savings of about $1 million per year.

But Vaccaro said cost is not his only concern. The system should provide information to end users in a more timely manner, he said. The mainframe tends to bog down at the end of the month, when it is overloaded with accounting tasks, and at around 2 p.m. every day, when a circulation program kicks into full swing. By distributing computing, the central system will not slow down as much, he said.

Hidden costs

Philadelphia Newspapers has discovered plenty of hidden costs in its move to client/server. Among them: Developing local-area networks tied into the HP 3000 has been trickier than anticipated, and the company has hired an outsourcer to take over that project.

Ways to save

Philadelphia Newspapers chose Collier Jackson's circulation program in part because parent Knight-Ridder, Inc. was encouraging its papers to adopt it and HP platforms. Philadelphia Newspapers could then save money it would otherwise have spent developing its own.

Horse club

CONTINUED FROM PAGE 65

It subsidiaries resells data such as racing statistics to publications, owners and breeders.

However, the lack of links and relationships between the data gathered by the subsidiaries has impeded the company from quickly offering new services, such as the ability to correlate breeding information with a horse's eventual racing performance. For example, The Jockey Club spends seven to 15 hours a day doing batch processing to prepare the mainframe's canned dial-up reports for the next day, Burch said.

Successful subsidiary

By contrast, one of the company's newer businesses, Equibase Co., which today uses an OS/2 relational database on an IBM Personal System/2 to collect racing results, "would know immediately which horse just won a race. The mainframe wouldn't know until the next day," Burch said.

Equibase's PS/2 system will be retired in favor of HP workstations for consistency among platforms, D'Altilio said. Equibase, a Jockey Club co-partnership with the Thoroughbred Racing Association, has accumulated information on 200,000 races in its 2½-year existence.

The Jockey Club's various system islands also impacted basic financial areas. For example, if a subscriber sent a check for service payment that did not have the horse's name on it, the company had no way to apply it to an account. "We simply had to return the check to the sender," said Denny Durcholz, a senior business analyst.

Durcholz was recently hired to examine the systems of all Jockey Club businesses and help re-engineer them. He and another analyst are about two months into interviewing high-level business managers for developing a new enterprise business model, which D'Altilio has scheduled for completion in October.

Then, software and new network development will take place in 1994.

Besides better access, Burch is eyeing a 25% reduction in operating costs.

D'Altilio's staff considered Unisys Corp. mainframe, Digital Equipment Corp. minicomputer, OS/2 and Unix operating environments before settling on its HP/Sybase combination. The vendor picks, D'Altilio said, had less to do with technology and more to do with vendor strengths in training and consulting in an industry shy on client/server expertise.

"Sybase and [competitor] Oracle technology really leapfrog each other," he said. "But we just couldn't get Oracle's attention; they were too busy. On the other hand, we've contracted for a nearly full-time Sybase consultant and part-time HP consultant that act like part of the staff."

Also, client/server technology "allows us to distribute the [processing] work load," D'Altilio said. "If we are treating data as a common resource, we don't want access compromised by competing requests."

D'Altilio said he views The Jockey Club as the prototypical company of the year 2000. "Data is our business. It's not like we only use data to help us run our business. We have no other products but data," he said. That being a given, "we have to be able to get at it!"

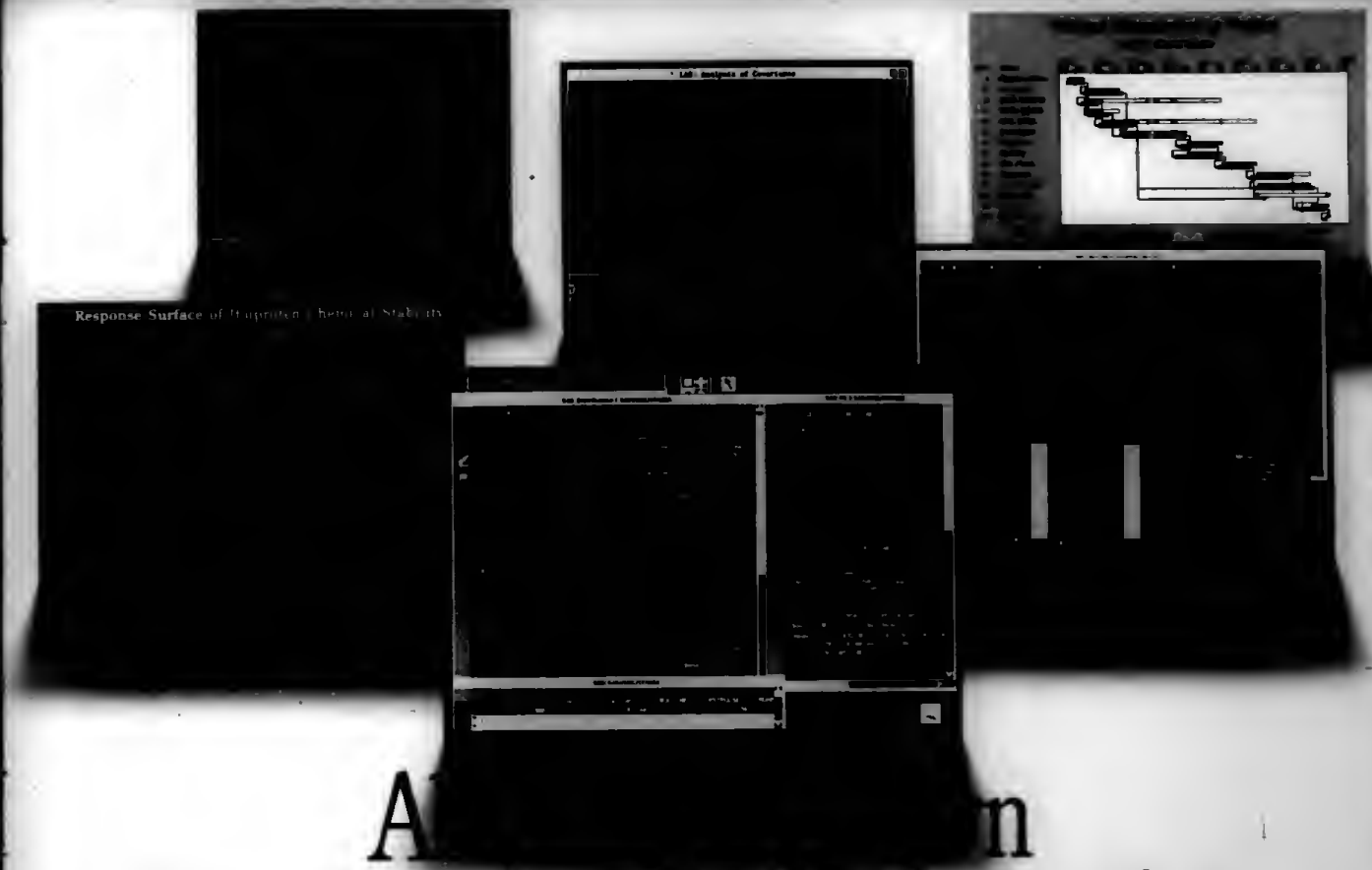
Betting on new standard

Networkwise, The Jockey Club is in the rudimentary stages of local-area networking and internetworking. It has an eye toward using the HP-driven, emerging 100Base-VG standard for "fast" (100M bit/sec.) Ethernet LANs, largely for the piles of bandwidth needed to accommodate imaging.

"We've got to get out of the data entry business and start scanning," said Robert A. Burch, the company's computer operations manager.

"Information is not just data; it could be video, voice and image," he said, providing pictures or videos of horses to subscribers, for example. This would require heftier networking technologies than 3270 mainframe access.

Burch is bullish on 100Base-VG because of economies he might leverage as an HP customer. However, he said he is disappointed that two technologies will survive from competing camps within formal standards bodies. "So we'll really have to wait and see which technology gets the attention of vendor products."



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New Cost-to-Use Analysis Key to E

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IDC has developed a better method of evaluating costs of computing. Price/performance numbers based on hardware benchmarks are often extremely poor predictors of the actual computing costs users will face. This is especially true in situations where customers are distributing very-complex workloads across an enterprise.

Hardware price-performance benchmarks such as TPC-A provide solid, base-level comparisons in specialized environments. They don't reflect the complexity of most users' business needs and processing workloads. Therefore, they have limited value in making realistic buying decisions.

The IBM AS/400, sometimes mistaken as a premium-priced product, emerges as the lowest cost-to-use system in complex, networked, enterprise-wide processing environments

To help IS management better predict the true cost of computing, International Data Corporation (IDC) developed a "cost-to-use" model. This model is intended to more-accurately measure and compare the full costs of using four types of leading midrange systems in networked, enterprise-wide applications. The systems in the study were: IBM AS/400, DEC VAX VMS, HP UX, and NetWare LANs.

Contradicts Price-Performance Notions

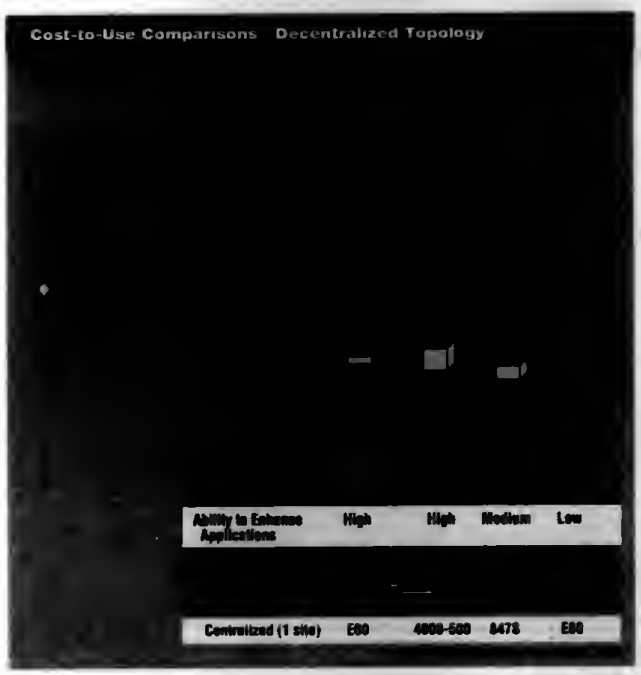
IDC studied more than 150 commercial computer installations in the United States. We interviewed more than 30 customers who have installed networked-enterprise systems to assess the full range of computing costs in complex, enterprise-wide environments. The model IDC developed from this research includes hardware, system software, application software, development-staff and operations-staff costs, and all overhead costs associated with remote-systems management performed by a central site over a five-year period.

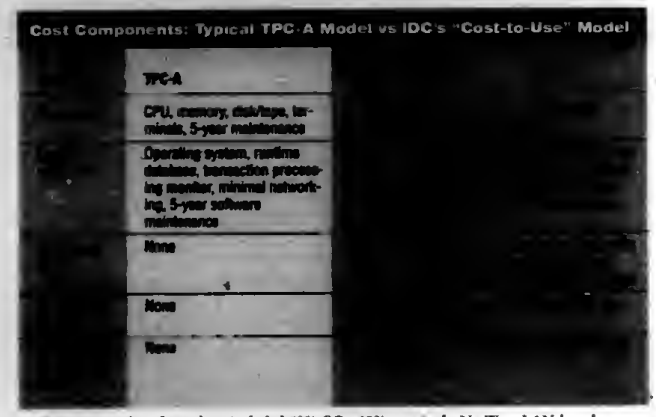
IDC believes the results of this study provide IS professionals with the best information available on the costs of processing in the most-complex type of computing environment, the networked enterprise. While we doubt that the results of the study will come as a major surprise to those who have fully considered the issues, our data contradicts notions based simply on hardware price/performance figures.

Options

Four major options appear to be available to PC LAN users.

1. Do nothing, and continue to live with existing distributed or decentralized topologies and functionality as they currently exist.
2. Wait for LAN vendors to deliver the needed functionality.
3. Add to operations staff, even though this will increase costs out of proportion to the increase in benefits.
4. Implement currently available technologies that provide the advanced functionality not yet available on LANs. While this may result in higher up-front costs, the IDC Cost-to-Use model indicates that this is the most-effective choice.





** Minicomputer-based topology included 60% PCs, 40% terminals. NetWare LAN-based topology included 100% PCs. Source: International Data Corporation, 1993.*

Staffing costs dominate

For example, consider the following:

- Integrated systems-management software services (a series of coordinated tools for administering local and remote systems) are a major differentiator for users because staffing expenditures dominate overall cost in the networked enterprise.

In a distributed topology, operations-systems staffs for IBM AS/400 and DEC VAX systems cost $36 per workstation per month, roughly a tenth of the cost of a LAN-based system. In a decentralized topology, as opposed to distributed, the reverse is true — LANs had the lowest costs for operations staff at $244 per workstation per month. However, IDC believes these staffing costs are likely to rise during the next two years as the LAN-based applications mature and require reworking.

- Users — even IT professionals — generally lack experience with networked enterprise topologies. The logistics of distributing new software, software updates, physical and electronic support services, and hardware in a networked enterprise are viewed as a major barrier to success. As a result, few users are taking full advantage of the possible benefits of complex, distributed processing.
- The application set on LANs tends to be less-sophisticated than those on minicomputers. Development resources available for minicom-

valuating Networked Enterprises

cation Business Systems

puters often are considerably more sophisticated that those available for LANs. In response to rapid changes in business environments, we believe that many LAN-based applications in networked enterprises will require significant reworking in the 1993-1995 time frame as the environments move from support roles (i.e. file, print, and electronic mail servers) to full-fledged production applications (OLTP, database, accounting, and data analysis) computers.

- The IBM AS/400, sometimes mistaken as a premium-priced product, emerges as the lowest cost-to-use system in complex, networked, enterprise-wide processing environments.

The IT industry is currently investing heavily in distributed computing — and rightly so. Distributing processing power while retaining overall cohesiveness is an outstanding strategy for achieving the most-pressing objectives facing IT professionals today: organizational effectiveness, better return on IT investments, increased productivity, and more-rapid exploitation of new technologies.

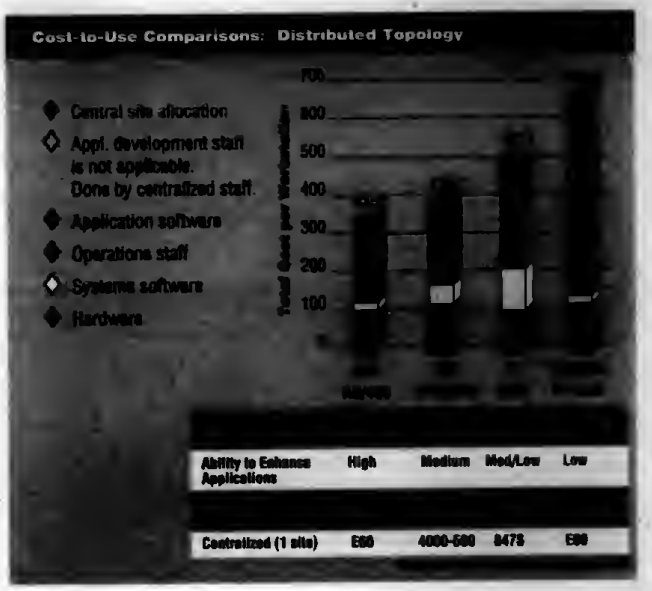
However, distributed processing is associated with significant complexity and uncertainty. Making the right decision reqnires higher quality, more-relevant information.

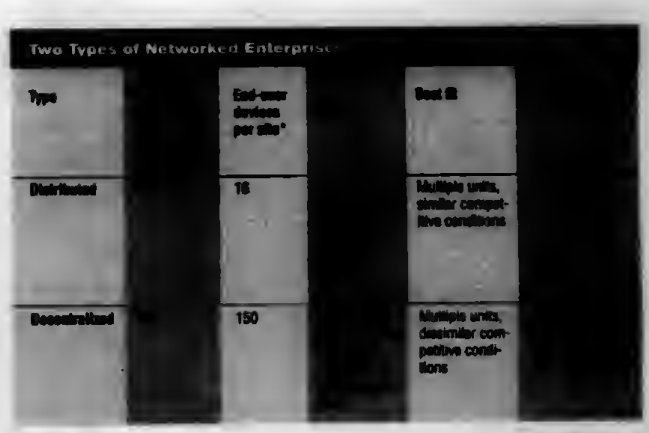
Conclusions

The information technology market is a very-complex place to shop. An expanding variety of hardware, software, and communications technologies, most associated with individual functional capabilities — that offer unique benefits — is being marketed hy IT vendors to prospective and current customers. IT professionals demand better sources, quality and types of information to help them make the right decisions when planning purchases in this market.

Popular benchmark metrics such as TPC-A are specialized indicators of application performance (e.g. OLTP). As systems topologies get more complex, the appropriateness of this benchmark decreases dramatically. But TPC-C and the forthcoming TPC-D and TPC-E benchmarks will provide significant advances.

Users are exploring more-complex topologies as they attempt to support more-complex business strategies.





** Site size and end-user populations based on survey data. These qualities are used as the basis for all distributed and ecentralized analysis Source: International Data Corporation, 1993.*

The distributed enterprise and the decentralized enterprise, although more complex relative to traditional host-based, fully centralized configurations, are especially attractive to many companies. Comprehending options in these more complex setting, however, requires special costing tools.

IDC applied its Cost-to-Use model to help users better understand tradeoffs between alternatives. From our research, the following conclusions emerged:

- Overall costs-to-use in networked enterprise are very dependent on staffing levels. Superior systems-software services allows users to minimize staffing levels at remote sites without also minimizing IT support and responsiveness.
- IBM's AS/400 and Digital's VAX VMS systems, largely because of their advanced system-software capabilities, are more attractive alternatives to LANs in sophisticated, networked OLTP enterprises. Moreover, our research indicates that IBM's AS/400's cost to use is superior even to Digital's VAX VMS offerings.
- The Hewlett Packard 9000 offers excellent pricing at the hardware level. It is heing positioned to attack costs of complex topologies and staffing issues. Its vulnerabilities are in applications software and system software in distributed topologies. In decentralized topologies, HP displays a lack of sophistication in system- and network-management tools relative to IBM and DEC.
- As customers gain more experience with complex, networked enterprise topologies, they will (1) become more familiar with the logistics and politics of choosing, implementing and managing complex topologies, and (2) they will deploy these complex topologies more often.

Although we feel that the functionality of UNIX and LAN alternatives will increase over time, customers looking to take advantage of the benefits of networked enterprise topologies shonld strongly consider more integrated alternatives.

- Many nsers with LAN-based, decentralized enterprise topologies will be forced to chose between continued reliance on aging, less-sophisticated applications — and the potential competitive disadvantages implied by that choice — or greater staffing costs to rework and maintain their code base. We feel that they will have to choose more staff, despite the added costs, if they retain these topologies.

For a copy of the complete report, "Cost-to-Use of Midrange and PC LAN Systems in the Networked Enterprise," call 1-800-765-0119.

[redacted]

Micro Decisionware, Inc. (MDI) has announced its Database Gateway for DB2, AIX Version.

According to the company, the product was designed for the growing number of users with architectures based on Unix servers and Transmission Control Protocol/Internet Protocol networks who have to accommodate high traffic loads and require the high performance affiliated with 32-bit processing.

Users can choose from more than 150 front-end tools. The product offers a "Transfer" function that is a copy management solution. MDI also supports OS/2 and Microsoft Corp. Windows NT and Unix server platforms.

Pricing begins at $2,500 and varies according to the number of connections.

▶ *Micro Decisionware*
3035 Center Green Drive
Boulder, Colo. 80301
(303) 443-2706

HarrisData has announced Version 6.2 of HarrisData/HRMS for the IBM Application System/400.

A Payroll Component enhancement includes a group update function that updates all employee deduction percents/amounts via a range selection. The Personnel Component enhancement features a Turnover Report to assist users in budget preparation.

Enhancements in Submittal Entry include expanded audit controls, and the product offers added Flexible Spending Account Administration capabilities.

Prices range from $6,900 to $45,000.

▶ *HarrisData*
611 N. Barker Road
Waukesha, Wis. 53186
(414) 784-9099

American Software has announced Flow Manufacturing Technology, an application designed to integrate finished goods planning with just-in-time execution.

Features for the product include flexible forecasting, flow line design, integrated demand management, rate-based planning, product costing, manufacturing accounting and simplified production reporting. The product also provides end-item planning, blanket purchase orders, cellular workstations and total quality management.

Prices range from $20,000 to $400,000.

▶ *American Software*
470 E. Paces Ferry Road
Atlanta, Ga. 30305
(404) 261-4381

The Storage Management Division of **Sterling Software, Inc.** has introduced SAMS:Allocate Version 5.0, a product designed to extend the capabilities of SAMS:Allocate to the allocation control of IBM's DFSMS data, offering a central point of control for the allocation of all MVS data.

In a single location, data allocation rules and standards can be coded using standard Automatic Class Selection-like routines, the company reported. The need to learn a new command structure and enter code in a second location is eliminated. Requirements to preallocate multivolume data sets is also eliminated because SAMS:Allocate automatically chooses an appropriate volume from the pool at the time the expansion to multiple volumes becomes necessary.

The product is said to optimize tape use and improve direct-access storage device use. Users can create rules and standards to use the storage hierarchy effectively, and SAMS:Allocate automatically allocates data and executes these standards.

Pricing begins at $13,500.

▶ *Sterling Software*
Suite 100
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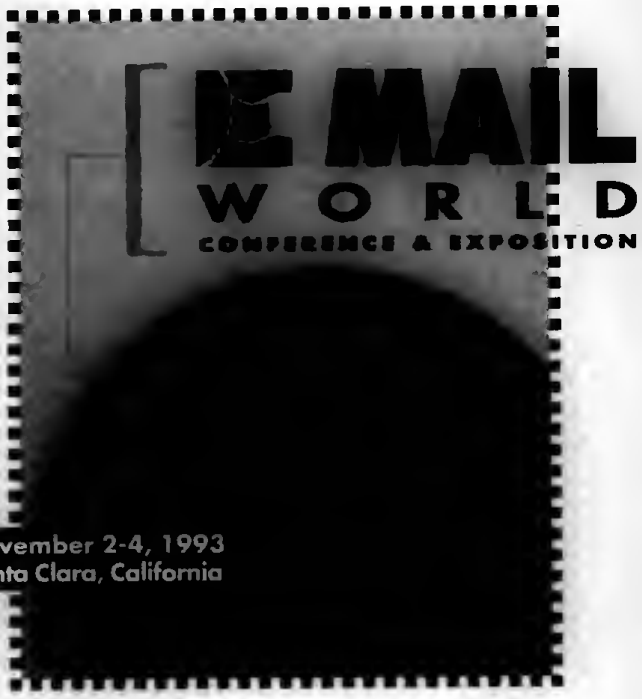

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   65 Communications Systems/Public Utilities/Transportation
   70 Mining/Construction/Petroleum/Refining/Agriculture
   80 Manufacturer of Computers, Computer-Related Systems or Peripherals
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   23 Dir./Mgr. Sys. Development, Sys. Architecture
   31 Programming Management, Software Developers
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   60 Government - State/Federal/Local
   65 Communications Systems/Public Utilities/Transportation
   70 Mining/Construction/Petroleum/Refining/Agriculture
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   23 Dir./Mgr. Sys. Development, Sys. Architecture
   31 Programming Management, Software Developers
   41 Engineering, Scientific, R&D, Tech. Mgt.
   60 Sys. Integrators/VARs/ Consulting Mgt.

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Tool sets

Database tools bear CASE's burden

By Kim S. Nash

■ Although database vendors recoil from the phrase "computer-aided software engineering," their development tool sets smell a lot like CASE for the desktop. The notion raises red flags about whether this next wave of CASE products will sink, like its ancestors, from the weight of oversized promises.

Sybase, Inc. is expected to unveil today a plan to integrate various tools the firm has recently bought or built. Oracle Corp., meanwhile, fights to meet its delivery schedule for development aids under its Cooperative Development Environment banner.

"CASE" is a four-letter word for many users who bought workbenches a few years back from Texas Instruments, Inc., KnowledgeWare, Inc. and others," said David Sharon, president of CASE Associates, Inc., a consulting firm in Oregon City, Ore.

"We're still dealing with false hopes stirred years ago," Sharon said, referring to CASE tool kits of the mid-1980s that promised top-to-bottom management of software development but ultimately disappointed users. The tools focused on front-end tasks such as application analysis and design, leaving users in the lurch at the code generation stage, he said.

Neo-CASE tools from database vendors have recognized that failing and sought to address it. In broad strokes, old CASE was good at front-end processes such as application modeling, while new CASE concentrates on quickly generating software.

Tools that are tied tightly to relational databases have filled some of the more glaring holes left by traditional CASE makers. Plus, they are better-suited than old-line CASE for doing client/server development, according to analysts. Gupta Corp., for example, provides point-and-click facilities for application prototyping.

Also key for database tools, analysts said, is that they have grown from the PC and Unix workstation world. Such neo-CASE products are better able to cope with client/server development, said Gene Forte, executive editor of *CASE Outlook*, a technical magazine in Lake Oswego, Ore.

"They have a better understanding of how to handle network control and administration," Forte said. Mainframe-oriented workbenches look at application development in a mainframe world, he explained, where security, administration and systems management are done in a central location.

For all the improvements new CASE tool sets make, neo-CASE has holes of its own. For example, a typical user does not simply shut down an existing application when his company decides to build a replacement. There is an overlap while the legacy software is in use and a more modern system is being built. Therefore, users need an automated, efficient way to synchronize the two applications. "It's a transient, temporary job, but an important one," Sharon said. Tool sets from Sybase and Oracle, for example, do little to address this migration problem, analysts agreed.

Another question comes under the heading of application testing. New CASE products largely lack facilities for automatically testing newly constructed client/server applications on multiple operating systems hardware platforms. Testing has always been a weak spot for all genres of application development aids, Forte said.

Dense market

Overall, the application development market is becoming increasingly crowded. Sybase's tools-unification plan, for example, is an attempt to reclaim ground lost to third-party tool providers, analysts said. Meanwhile, old-line CASE makers seek to combat challenges from database companies and others by partnering with upstarts such as Powersoft Corp. Bachman Information Systems, Inc. and LBMS, Inc., for example, have agreed to provide links between their mainframe-based CASE tools and PowerBuilder, Powersoft's Windows-based development environment.

"The market can only make room for this kind of activity for so long," said Tim Harmon, an analyst at Meta Group, Inc., a consulting firm in Stamford, Conn.

He declined to name names but estimated that several development products companies will fall by the wayside within eight to 12 months. "I expect a wrenching shakeout," Harmon said.

Sybase release

Sybase, which was never known for strong development tools, will bound into the market today. Sybase plans to unite its disparate development tools under a single banner, lashing together a fourth-generation language, modeling and object-oriented products (CW, Aug. 16).

Development dictionary

Front-end work: Analyzing user requirements for a new application and designing the system from that data.

Back-end work: Generating an application from design specifications and testing the system.

Synon offers Windows support to AS/400 developers

By Melinda-Carol Ballou
LAGUNA HILLS, CALIF.

Synon Corp. recently announced a suite of products targeting Application System/400 development for Windows, as well as new releases of a range of Synon tools.

Synon offers a development environment for the IBM AS/400 that lets users design, develop and maintain applications for cross-platform execution on IBM's RISC System/6000 mainframe platforms, PCs or Hewlett-Packard Co.'s 9000 series.

With the new Windows 3.1 generator for Synon's client/server product, developers will be able to use the AS/400 as a server running OS/400 and PC clients running either Windows or OS/2. From the same data model, users will be able to build native AS/400 applications supporting either Windows or OS/2.

"The fact of the matter is that we thought we'd support OS/2 because of its multitasking [capabilities], but the predominance of Windows brought us to say to ourselves that we just had to offer what the customers are asking for," said Jim Smith, marketing director at Synon. Synon will offer a version of the tools for Microsoft Corp. Windows NT server development early next year.

A new release of the Synon base product, Synon/2E, will allow users to perform change management at the model level. Developers will no longer have to go into the "guts" of the application at the source or object level to make changes, Smith said, but will be able to make changes to the model instead. In addition, the new release offers multilevel impact analysis linked to model object tracking and Archive/Revert features.

"Model level changes are critical, particularly in large development environments, because you may need to make multiple changes to a single model at the same time," said Roger Buss, managing director of information services at RLI Insurance Co. in Peoria, Ill. "And Windows support is important because it's not clear what the future of OS/2 is."

The Synon/IM change control tool will now provide check-in and checkout of model objects with conflict detection and resolution, promotion and archive/rollback at the model level.

A new product, Synon/PE, or Performance Expert, is a knowledge-based system designed to optimize the performance of Synon applications in AS/400 environments.

Synon RPM, a rapid application development tool for Synon/2E, includes a set of sample project deliverables with step-by-step examples and testing forms.

Synon/2E 5.0 and the client/server tool for Windows will ship during the first quarter of 1994; Synon/PE will ship during the fourth quarter, and the other products are available now. Pricing for Synon/2E 5.0 starts at $48,000, Synon/PE starts at $2,500, the client/server product starts at $2,400 and IM starts at $4,125. Synon RPM is priced at $15,000, which includes computing services.

IBM connection

In 1992, IBM acquired minority equity interest in Synon. Synon has continued membership in AD/Cycle, and Synon products are distributed as IBM logo products.

Visual Basic strategy draws praise, concern

By Melinda-Carol Ballou

■ Microsoft Corp.'s effort to universalize Visual Basic by using Visual Basic Applications Edition as a common macro language within popular Microsoft applications appears to be working, judging by comments from potential users.

But some expressed disappointment over Microsoft's failure to open up Visual Basic to non-Microsoft applications.

Microsoft plans to integrate Visual Basic with Microsoft Excel Version 5.0 and Microsoft Project Version 4.0 and to ship them in the fall, with eventual support for other Office applications [CW, June 28]. The common macro language and support for Object Linking and Embedding (OLE) 2.0 enables users to more easily integrate applications and automate various tasks, officials said.

When Microsoft announced Visual Basic Applications Edition earlier this summer, it was too late for developers at Lockheed Missiles and Space Co.; they had already spent people power writing code to integrate Visual Basic with Excel.

Yet project managers at Lockheed and other sites praised the new Visual Basic capabilities and said they look forward to its release.

"We hooked Visual Basic up with Excel but had to write the interface ourselves," said Bob Remington, project leader for the Rapid Prototyping Lab at Lockheed. "The upcoming integration with Excel and with [Microsoft's] Access database engine will make life much easier, as will connections with the other Microsoft applications."

"The nice thing about Visual Basic for Applications is that it allows you to move a lot of your application code into Excel and use Excel as an application development tool," said David Osborne, a vice president at Bankers Trust Co. "They also have a link from OLE 2.0 to encapsulate Excel within [Visual Basic] which really opens it up. And [Microsoft Word] is next," he added.

Mixed reviews

While some sites offered only praise for Visual Basic, others bemoaned the lack of an embeddable scripting language and Microsoft's proprietary grasp on the product.

"The difficulty with [Visual Basic] is that it's hard to add your own functions and integrate them tightly into an application," said Kip Mercure, software development manager at Dow Chemical Co. in Midland, Mich. "We need a scripting language that allows us to embed macro code."

Mercure's group at Dow, therefore, opted for an embeddable scripting language from SoftBridge Corp., a Cambridge, Mass.-based tools company, whose product is syntactically compatible with Visual Basic.

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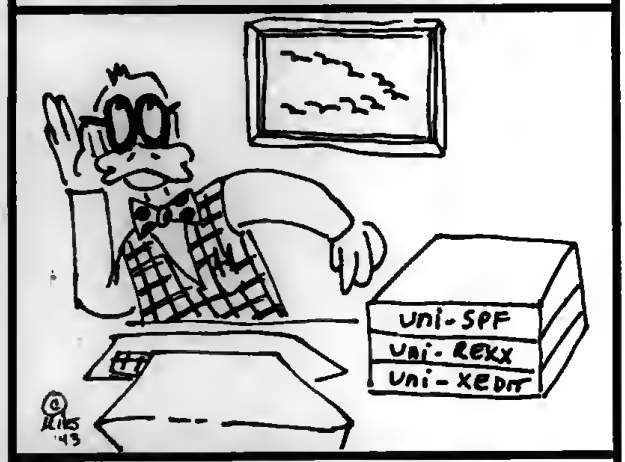

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Popkin announces PowerBuilder link

CASE tool offers improved data modeling, GUI

By Melinda-Carol Ballou
NEW YORK

Popkin Software & Systems, Inc. recently demonstrated Version 3.0 of System Architect (SA), Popkin's PC-based computer-aided software engineering tool (CASE), and an interface between SA and Powersoft Corp.'s PowerBuilder.

Features key to the new release include enhanced data modeling and object-oriented features; a graphical user interface with floating toot box; and support for IDEF0 and IDEF1X, key standards for process and data modeling used by the federal government.

The release also offers new data modeling features such as support of views, relationship lines between entities and automatic foreign key generation. Users can define new dictionary definition types as well.

The object-oriented capabilities include the ability to use the SA Schema Generator to generate relational database management system schema from class attributes and to define methods and services locally based on object or class.

Coming up to date

The new graphical user interface support brings SA in line with Windows 3.1; previously, SA ran in conjunction with a Windows took that was 5 years old, according to company officials.

The SA/PowerBuilder link allows developers to import and export design information between SA and PowerBuilder, including data elements, entities/tables and extended attributes, Popkin officials said.

SA pricing starts at $1,395, and Version 3.0 will ship in October, when it will be formally announced at CASE World in Boston. The SA/PowerBuilder Link is priced at $1,995 and is slated to ship during the fourth quarter.

[redacted]

ObjecTime Ltd. has started shipping ObjecTime 4.1, its object-oriented computer-aided software engineering tool for distributed, event-driven systems.

According to the company, the validation of design models and executable requirements has been improved by the visualization of message flow during model execution.

The product now supports Hewlett-Packard Co.'s HP 9000/700, IBM's RISC System/6000 and SunSoft, Inc.'s Solaris 2.2., as well as the previously supported HP 9000/400 and Sun Microsystems, Inc.'s Scalable Processor Architecture.

Through a floating license manager, ObjecTime user licenses can now be shared. ObjecTime supports an advanced methodology called Real-Time Object-Oriented Modeling that is used for the analysis and design of distributed, event-driven systems.

ObjecTime 4.1 also features other enhancements including improved support for modeling complex structural relationships, message breakpoints, more detailed protocol specification and a color user interface.

A node-locked license costs $20,000, and a floating license costs $25,000.

▶ *ObjecTime*
Suite 200
340 March Road
Kanata, Ontario, Canada K2K 2E4
(613) 591-3535

Borland International, Inc. and JYACC, Inc. have announced the availability of JAM/Database interface for Windows and DOS Link for InterBase.

The JAM interface to InterBase provides complete access to all interBase SQL functions without writing third-generation language code, the firms said.

Users can define character and field-level edits and validations, specify the layout and visual attributes of screens and create and link together screen, window and meno objects by using JAM's authoring tools.

Development licenses cost $990 for DOS and $1,780 for Windows.

▶ *JYACC*
116 John St.
New York, N.Y. 10038
(212) 267-7722

Concentric Data Systems, Inc. has announced R&R Report Writer SQL Edition, a client/server data access and reporting tool for the Windows environment.

According to the company, the product provides users of Oracle Corp.'s Oracle, Sybase, Inc.'s SQL Server, Microsoft Corp.'s SQL Server, Novell, Inc.'s NetWare SQL, Btrieve and Xbase with the benefits of R&R's query, analysis and summary capabilities in conjunction with publication-quality output.

R&R Report Writer SQL Edition is both an end-user and a developer tool that can generate SQL statements invisibly and automatically. Improved layout and presentation features such as color printing, background shading and line and box drawing are included.

A single-user package costs $395.

▶ *Concentric Data Systems*
110 Turnpike Road
Westboro, Mass. 01581
(508) 366-1122

Bristol Technology, Inc. has announced Wind/U 1.3, a Windows to Unix portability tool kit with support for Microsoft Corp.'s Visual C++ applications via the Microsoft Foundation Class Library Version 2.0. The product allows Windows and Visual C++ applications to run as native Unix/Motif applications, the company said. Cost: $9,950. Bristol Technology, Ridgefield, Conn. (203) 438-6969.

Scatter-shot systems

There are dozens of ways to buy and manage technology in a decentralized environment. Some of them work.

MICHAEL ABRAMSON

Sara Lee's Vince Swoyer: *'I'm never going to be a technology czar'*

BY WILLIE SCHATZ

Alarm bells went off in Louis Chiesa's head when he learned that Tyco Corp.'s Asian subsidiary wanted to put $800,000 of the company's money into two new Prime Computer, Inc. machines.

"I thought it was terrible overkill," says Chiesa, vice president of MIS and administration at the Exeter, N.H.-based, $3.1 billion maker of water-flow devices and fire protection equipment. "They definitely needed new equipment, and they wanted to continue using Prime machines. I think they thought they could get away with one."

And why not? Chiesa's global information systems empire may encompass 200 employees with a $15 million budget, but he knows very little about Tyco Asia Pacific Ltd. or any other Tyco subsidiary's daily information technology activities. Each company is allowed to do its own technology thing. The only time Chiesa sticks his face in their businesses is for a capital expenditure greater than $25,000.

So who's the IS boss? A corporate maven such as Chiesa? Or the IS executive at the individual company? Perhaps more importantly, how does an organization keep from tripping over itself technologically and duplicating costly efforts? That endless struggle is what John Varanelli, a senior analyst at New Science Associates, Inc. in Westport, Conn., calls the $64 million question.

"Centralized IS has historically been in such ill repute

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Scatter-shot systems

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that it's hard in many organizations to receive a fair hearing for implementing any standard in a decentralized environment," Varanelli contends. "But it's technologically intelligent for an organization to have a standard yet open environment."

So how do you create that nirvana in a global company with several dozen divisions, hundreds of corporate IS personnel and thousands of worker bees?

Not long ago, the answer was easy: When the corporate IS office spoke, most employees listened. Then came the revolt against mainframes. In many companies today — where shadow IS organizations spend as much as 60 cents for every technology dollar — the motto seems to be: "Whatever floats your boat" [CW, Aug. 2].

That philosophy apparently prevailed at Tyco Asia Pacific. But because $800,000 is higher than Chiesa's jump-in threshold, he hopped a plane to Sydney, Australia. When he asked the Aussies why they needed more than twice as many new millions of instructions per second from a struggling company, few answers were forthcoming, he recalls. Even if they'd had answers, Chiesa adds, it wouldn't have mattered.

Ultimately, Chiesa gave the subsidiary a spare Prime machine from Canada and told it to hang on until IBM's RISC System/6000 hit the street.

"They were really pissed off," Chiesa recalls. "We had one hell of a fax war for a while. But three years later, they're thanking me."

Indeed, such conflict occurs constantly, as multinational companies struggle with how to assess and deploy technology cost-effectively in increasingly decentralized environments. Each company has its unique ways and means. The golden rule of thumb? If it works, do it.

"The question of how you integrate IS in a decentralized environment varies from one company to the next depending on the philosophy of the organization," says Dudley McRae, director of corporate IS at Phoenix-based Phelps Dodge Corp. Although he concurs with Varanelli that the issue hits companies where they live, McRae says it's only a $64 question.

"You can't hamstring yourself by following a specific hardware or software," he says. "But at the same time, you have to have standards."

Phelps Dodge: Independence

Phelps Dodge achieves that blissful state by centralizing its back-office IS information about the company's financial, payroll, insurance and human resources programs and, through a corporate steering committee, the company's IS policy. Almost every other IS function is left to the discretion of the IS tribes at the Phelps Dodge Industries and Phelps Dodge Mining Co., the company's major business entities.

Each group has its own IS staff, whose members report to the local management. McRae's only involvement in the local operations occurs when one of the groups wants to make a major hardware or software acquisition. The president of the division sends the request to McRae, who reviews it to determine whether it fits within the corporate IS plan. If McRae says no, the deal doesn't go through until he finishes investigating the ramifications.

McRae says Phelps Dodge wants its distributed IS staff to be as close to the local business functions as possible and to respond to the business manager's needs and requirements to get the job done. But he's not about to dictate that from Phoenix.

"We're not going to tell particular companies within our divisions that they have to follow a particular technology," McRae says. "If you acquire different divisions over the years, as we have, then you have to be prepared to live in a multivendor world. Our job is to set an example for the different divisions and show them viable systems that can be beneficial."

Easier said than done, of course. If a company executive spots a more efficient way to accomplish a strategic business objective, McRae's minions will lead the client/server charge and the ensuing migration of applications to the workstation. If a different approach is successful for one of the company's businesses, more power to it.

Luckily, McRae craves heterogeneous environments. Two of the company's five divisions are using OS/2; the remaining three are committed to Windows and Unix. But that's nothing compared with the nine different electronic-mail systems scattered across 11 manufacturing sites. So if someone wants to send an intracompany message in real time, he had better use the phone.

"Our problem is the same as for most corporations our size," McRae says. "We want as much integration as possible but not more than we need to be effective. Since our industrial companies are really autonomous in their business objectives, integration is much more important for the executives."

Melville Corp.: Regrouping

McRae clearly is not flying solo on that journey. At Melville Corp., a $10 billion Fortune 100 company with 7,120 retail stores and 100,000 employees, Vice President and Chief Information Officer John Mitchell has been playing catch-up ball following Melville's belated recognition of the Information Revolution.

The company, which lives and breathes IBM, is attempting to solve its information problems by taking to the sky. It is using 1,500 personal earth stations to keep its far-flung subsidiaries in touch with one another. It plans to add another 1,500 in the next 18 months to finally connect all the company's stores with their respective division offices and distribution centers. The division offices will be connected to one another and to the Rye, N.Y., corporate headquarters.

"Until five years ago, we were absolutely autonomous," Mitchell says. "But we're moving away from that to leveraging our knowledge and facilities and taking advantage of the technology to dramatically improve our delivery of information services."

Mitchell cites Melville's check authorization system as a prime example. If one large division uses the system, it's a small incremental cost for another division to use it through the satellite network. The IS-in-the-sky thus precludes the usually enormous costs of developing and arranging a separate system.

Although Melville, which has 10 operating divisions, is far larger than Phelps Dodge, Mitchell has to cope with a much less heterogeneous environment than McRae. The five largest divisions, which are delineated by revenue, are based on IBM Enterprise System/9000s. The two midsize divisions make their living off Application System/400s. The three small divisions rely on RS/6000s. The decision to go all IBM was made by Mitchell and the divisional IS executives.

But that decision, as do the yearly strategic information plans autonomously devised by each division, must synergize with the company's overall business direction and strategic plan, which is es-

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How they sow technology

Most large, successful organizations today are using a mix of centralized and decentralized IS functions

Tyco Corp.

A centralized IS operation for the $3.1 billion Exeter, N.H., maker of water-flow devices approves technology purchases over $25,000.

Phelps Dodge Corp.

Back-office IS functions, including payroll, insurance and human resources, are centralized at the Phoenix headquarters. Most other functions are left to divisional IS staffs, which report to local management. Division presidents forward IS proposals for corporate review.

Melville Corp.

The $10 billion retailer, with 7,120 stores and 100,000 employees, is moving to centralize key functions after an unsuccessful period of granting divisional autonomy. Key shared applications such as check administration are handled through a new companywide satellite system.

Sara Lee Corp.

Each of the 100 units handles technology independently. A 25-person corporate IS staff acts as "umpires and referees."

Hard planning: The year ahead

Most large organizations plan to keep a delicate balance between central and distributed platforms in 1993 and beyond

"Which one of the following statements best describes your site's strategy for managing centralized and distributed hardware resources during the next 12 months?"

1	We expect to more or less maintain the current mix of central and distributed resources.	47%
2	We are focusing most major new application developments on smaller, distributed systems, but we are not really changing existing applications.	17%
3	We are moving major applications off our central computers onto smaller, distributed systems.	20%
4	We are consolidating our distributed processing capacity onto larger, centralized systems.	5%
5	We are moving applications based on low-end LANs to more robust, host-based platforms.	7%
6	Don't know.	4%

Base: 874 respondents

Source: International Data Corp., Framingham, Mass.

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Regroup if you must

By Johanna Ambrosio

The unique demands of distributed systems support have led some information systems shops to reorganize how they structure themselves.

Nike, Inc. in Beaverton, Ore., for instance, regrouped about two years ago. Dan Croft, manager of computing services, used to manage the data center, help desk and applications development. Now he handles operations, client services, data network operations and workstation services.

"My mission in life is to manage the multiuser, client-owned platforms running Nike business applications," Croft said. "We think we have the organizational structure in place that can handle all the technology we need."

Something for everyone

Atlantic Richfield Co. in Plano, Texas, no longer has a local-area network administrator in each department, as was the case in years past. Now there is a centralized network services group of about 35 people who provide "some core functions for everyone," said Mark Armentrout, manager of network services.

These include automatic backup and security, as well as some technical support for the 100-plus servers used in the company's upstream oil business. The group also serves as the focal point for working with vendors.

In addition, Armentrout's group supports the voice and wide-area data network for services such as electronic mail and helps set standards for naming and file transfer.

First-level technical support is provided by technicians on site at Atlantic Richfield offices nationwide. ■

Scatter-shot systems

CONTINUED FROM PAGE 76

tablished annually by a 12-person council consisting of corporate and divisional business and IS executives.

"Integration is neither a priority nor a desire," Mitchell says. "We want enough standardization and consistency in our applications portfolio and our hardware and software platforms that we can leverage our knowledge across the divisions without having experts in everything in every division.

"It's working, but part of our problem is that a loose confederation like ours elongates that [leveraging] process. A dictatorship moves more rapidly, but we don't work that way, and we never will. It's foreign to our culture."

> "A dictatorship moves more rapidly, but we don't work that way."
>
> *John Mitchell*
> *Melville Corp.*

But many large corporate IS departments are finding that they can go home again. According to Dean Meyer, president of NDMA, a Stamford, Conn., consulting company, decentralization generally leads to architectural fragmentation. That's one of "many reasons" why Meyer says the IS pendulum is swinging back toward centralization.

However, Meyer warns, the need to locally tailor mission-critical IS solutions remains essential for global corporate competitiveness.

Chiesa deals with that issue daily. Tyco is decentralized enough so that when Grinnell Corp., a leading fire protection device manufacturer, instituted a scanner system to replace its manual reporting method, the IS director never heard a discouraging word from Chiesa.

But that freedom is countered by the straitjacket Chiesa can place on his company's often-recalcitrant IS directors.

"I look at technology just as I look at a new machine for the business," Chiesa says. "What's the return on investment? How will it add to earnings per share? Will it increase profitability?"

That philosophy also rules at Sara Lee Corp. If you think the Chicago-based conglomerate only bakes cakes, forget it. Within the Sara Lee umbrella are 100 companies, each traversing its own IS path. It's Vinco Swoyer's job to ensure that each division is equipped with the appropriate technology, despite having no control over any of the divisional operations.

Keeping in touch

Swoyer's first priority is staying in contact with the IS directors at the operations level because "they're the people really doing things." Swoyer's 25-employee corporate IS office tracks what's happening in the field so it can relay the information to whichever division is interested in the data. As with umpires and referees, Swoyer says his best work won't be noticed.

"I'm never going to be technology czar," Swoyer says. "I don't have the wherewithal to understand what technology each division needs to best do its job. When they tell me it's needed, I'll assist the divisions in selecting software and hardware.

"Integrating and interconnecting systems is not a priority. Only the divisional financial information and unit volume performance come to the corporate IS office. We don't see any operating data such as manufacturing flow or order backlog. We always try to keep an open mind about the use of technology. We don't put it in just to see the technology work. We use it to make the business more profitable."

Sometimes the business makes money despite the technology. At Baker Hughes, Inc., for example, employees communicate the old-fashioned way.

"The divisions get their information to us, but not in a high-tech way," says Leroy Harmeyer, director of corporate MIS at the Houston oil field services and process company. "We use fax, letters and some E-mail to get the stuff in and out of here."

So if the vice president of human resources, for example, wants to distribute a directive to all 20 of the Fortune 200 company's divisions, he's going to fax it?

"That's the fastest way for him to do it," Harmeyer says. "Is it the best way? I don't think so. But that's how it's being done, and we're getting by. I don't think it's hurt business that I haven't jumped out there and said, 'This is the way it's going to go.' I know we're talking dinosaurs, but what's the solution?"

Forget that. What's the problem? Harmeyer says he has not heard any "screaming need" for a change in how the company communicates. A few whimpers, perhaps, and possibly some well-disguised dissension. But if any of those traits exist, Harmeyer doesn't hear about it. And with the company's business booming, he probably won't.

"I admit that our technology is not ready to allow me to communicate with anyone in the company at any time," he says ruefully.

"But does that really matter? If you've got 20 employees and each one knows what needs to be done, does it matter if the guy doing the hedges talks to the guy mowing the lawn? No, not if they get the job done," Harmeyer says. ■

Schatz is president of The Schatz Group, a Washington, D.C.-based consultancy.

Executive Track

Polly McClure has been named vice president for information technology and communication at the **University of Virginia**. Formerly associate vice president and chief information officer, McClure has broad planning responsibility for expanding the university's electronic infrastructure. University officials said the appointment reflects the growing importance of technology at the Charlottesville, Va., school.

Meanwhile, **Edward Lieblein** has been appointed dean at the Center for Computer and Information Sciences at **Nova University** in Fort Lauderdale, Fla. A former director of computer and software systems at the Office of Secretary of Defense in Washington, D.C., he has been a member of the center's faculty for the last three years.

In health care, **Gwy Benda** was named manager of strategic information services at **Central DuPage Hospital** in Winfield, Ill. He was formerly a health analyst at Central DuPage Health System. **Ira J. Rothman** was named vice president of information technology at **Foundation Health Corp.** in Rancho Cordova, Calif. **E. Bradford Ridley** was named assistant director of information resources at **Massachusetts General Hospital** in Boston.

In consulting, **Tom Lewis** was appointed senior consultant at the **Strifler Group**, a Dallas-based information systems consultancy that specializes in shifting clients to open systems. Lewis will lead a team specializing in IS technology for manufacturers.

Calendar

SEPT. 12 - SEPT. 18

Penn Tech '93. Philadelphia, Sept. 13-14 — Contact: Pennsylvania Technology Council, Pittsburgh, Pa. (412) 687-2700.

EDMS '93 User Forum. Anaheim, Calif., Sept. 13-16 — Contact: The Kalthoff Group, Cincinnati, Ohio (513) 871-6808.

Engineering Document Management Systems. Anaheim, Calif., Sept. 14-16 — Contact: The Kalthoff Group, Cincinnati, Ohio (513) 871-6808.

Omnicom Week Conference. San Diego, Sept. 14-17 — Contact: Sherri Ross, Omnicom PPI, Phillips Business Information, Inc., Potomac, Md. (301) 424-3338.

SEPT. 19 - SEPT. 25

1993 SIM Conference. Washington, D.C., Sept. 19-22 — Contact: Gregg Lapio, Society for Information Management, Chicago, Ill. (312) 644-6610.

1993 Interex Hewlett-Packard Computer Users Conference/Expo. San Francisco, Sept. 19-23 — Contact: Interex, Sunnyvale, Calif. (408) 747-0227.

Business Excellence For Top Management. Kansas City, Mo., Sept. 21-23 — Contact: Joanne Gordon, Sandra Conn Associates, Inc., Chicago, Ill. (312) 327-0082.

Mobile World. San Jose, Calif., Sept. 21-23 — Contact: Digital Consulting, Inc., Andover, Mass. (508) 470-3880.

Second IEEE Network Management and Control Workshop. Tarrytown, N.Y., Sept. 21-23 — Contact: Hart Rasmussen, Workshop/Tutorial Registration, CATT, Hawthorne, N.Y. (914) 347-6942.

Expo '93. New York, Sept. 21-23 — Contact: Bruno Blenheim, Inc., Fort Lee, N.J. (201) 346-1400.

Document World '93. Hartford, Conn., Sept. 22-23 — Contact: Key Productions, Inc., Hartford, Conn. (203) 247-8363.

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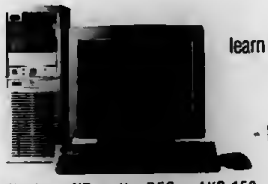

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Training and support is being embedded in systems so users can learn on demand, on the job. By using these integrated performance support systems, companies such as BASF have reduced training costs, cut help desk staff and made users more self-sufficient.

LEARN while you WORK

By Lance E. Dublin

Information systems managers, listen up: I want you to throw out your old notions of training, documentation and support. They're just not going to cut it anymore.

Face it. The world is changing too fast to make memorization the primary way people learn and improve their job performance. This rote learning may not only be futile — it is estimated that most staffers may lose up to 90% of what they learn in a traditional training session — but also pricey. Traditional, instructor-led training costs average $150 to $350 per person per day.

And that's only the direct costs. When you add in the cost of lost productivity as staffers wait to be trained or take time out to attend training sessions, it's not hard to see why most companies shell out between 1% and 5% of their total annual budgets on employee training!

Luckily, you don't have to rely solely on memorization and instructor-led training any longer. Most of the information and tools workers need to do their jobs can be made available on demand, just in time and at their fingertips.

The burgeoning area of integrated performance support systems (IPSS) is helping to make learning on the job easier. IPSSs are a combination of computer systems (in which learning, advice, guidance and support are embedded into an application itself or are accessible from the application at any time), media systems, people and paper to help workers keep pace with change. They also help companies save money over traditional training methods. (For a cost worksheet, see page 82.)

What you want it to be

Today, there is no turnkey system that falls into the category of "performance support system." Rather, it is up to you to create these system from off-the-shelf and internally developed components, depending on what your users need.

A comprehensive IPSS might include a mix of the following components:

• *Technology:* Computer-based training and interactive tutorials for learning; context-sensitive and inquiry-based Help and on-line reference systems for information; expert, rules-based or knowledge-based systems; and on-line bulletin boards. Oftentimes a company will set up a bulletin board and train users to post their questions there *before* calling the help desk. Then, if another user doesn't answer within 24 hours, the help desk will post an answer. Using a product such as Notes, these answers can then be incorporated into a knowledge base for all users.

• *Media:* Videotapes and audiotapes, interactive videodisc and

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Learning

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interactive videotape for information and learning.

• *Print:* Paper-based help is unavoidable and actually suitable for some users. Sometimes, it is a nice break for users to look at something other than the screen.

• *People:* Instructor-led training, hot-line phone support, consulting, application development and management briefings. Users still find it soothing to talk about new systems with others.

Change for the better

At some firms, the savings and benefits of IPSSs are dramatic.

A large insurance association in San Francisco that has been in business for 100 years had been burdened by old ways of doing things, especially in the customer service area. It decided to revamp its business processes and include a new system to help expedite customer inquiries. That meant a hefty training schedule for thousands of employees.

The company calculated that retraining staffers in new job functions and the new system using traditional instructor-led training would take four years and cost tens of millions of dollars. Retraining with an IPSS would reduce costs 66% and help cut training time to 18 months.

The association's IPSS includes an on-line Help and reference system, print-based manuals and job aids. In order to handle on-the-job learning, it also gives users access to computer-based training applications as well as audio and video self-study supplemented by workshops.

The system helped reduce the time employees were away from productive work. With a traditional one-size-fits-all class approach, each employee would be off the job for 65 days; with the IPSS one-size-fits-one approach, training will require 30 days or less, the company estimates.

For Parsippany, N.J.-based BASF, Inc., the biggest benefit of IPSS came in the form of reduced help desk support.

When the company rolled out a new ecology database to 75 sites in the U.S. and Canada, it rolled out an IPSS strategy as well. That consisted of sending out a PC-based demonstration and tutorial disk, which contained sample screens and work-flow information, three months prior to the application's release. The on-line Help system was written for users by users.

When users need help for a problem, for instance, they press the Help key. They get directed to the appropriate training, learning or Help tool (be it electronic or paper-based). The user also has the option of posting problems on the company's bulletin board for help from other users. The Help desk is a last resort.

As a result of this media mix of support and training, BASF employs only one help desk person to handle its 500-plus users.

Cuts down wasted time

IPSSs minimize the need for unneeded memorization, disruptive support calls and untimely training. They should be designed from a user's perspective: They should be based on what a user needs, when he needs to know it and how he can best get the information.

Just-in-time performance support means that companies don't have to rely only on experts to handle problems or train every staffer to expert level. A knowledge worker armed with a little on-line boost can do wonders.

General Electric Co., for instance, has an expert system-based performance support system that helps railroad maintenance people fix and learn about diesel electric locomotives without an expert looking over their shoulders, according to Angus Reynolds, a technical trainer in Central Islip, N.Y.

The system provides the user with a menu of possible problem areas, and after he picks one, the system generates detailed questions — about, say, fuel pressure, the fuel filter and so on — so it can pinpoint what's wrong. Depending on the user's responses, the system forms an if-then scenario, such as, "If the engine is set to idle, fuel pressure is below normal and the fuel filter is OK, then the fuel system is faulty."

Added features include the ability to print out diagrams that show component locations and a color videodisc player that illustrates detailed step-by-step repair procedures. Today, the system handles 80% of GE's diesel electric locomotive troubleshooting problems.

Keep in mind that while each company can pick and choose what goes into its systems (costs typically run between $100,000 and $1 million), there is a singular philosophy that underscores their creation: The system *must* provide information, advice and learning when it's needed, where it's needed and in the medium most effective for the user. ■

Dublin is chairman and chief executive officer of The Dublin Group, Inc., a human performance consulting firm in San Francisco. He is also on the board of the International Computer Training Association.

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■ Electronic Performance Support Systems
By Gloria Gery
(1991, Weingarten Publications, Boston)

does training cost? A comparison

The following worksheet is based on training 500 employees on a $10 million system with a 12-month payback in a billion-dollar organization.

	Traditional approach	IPSS approach
Lost opportunity cost in the first year The cost incurred while staff waits to be trained.	Traditional training occurred over 12 months. Full payback could have been achieved in six months, but users had to be trained. Assume 50% of six-month payback lost in the first year.	System implemented in six months. Training on the job. No time lost.
Lost work time Time spent training means time lost from regular duties.	Average cost to employ one person is $1,000 per week (salary + equipment + benefits); if each of the 500 employees gets two weeks of training, it costs the company.	With IPSS, training lasts only two days.
Training expense What it costs for in-house training.	Employing two trainers and setting up a facility to train 500 users in one year costs $375,000. Cost for developing two weeks' worth of courseware is $300,000.	Cost for facilitator/coach to help with initial system use.
User support (help desk) The cost to support end users after training.	Need two full-time employees (system experts), facility and equipment.	
System development	Not applicable.	

■ Cost savings with an IPSS approach is $2.81 million — a 65% savings in the first year.
■ Materials developed for traditional approach are immediately consumed. IPSS materials are a reusable asset.

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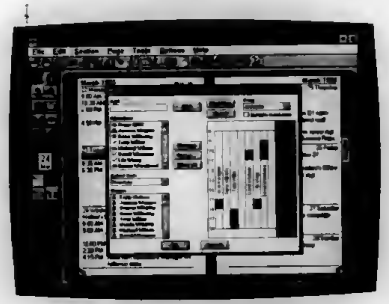

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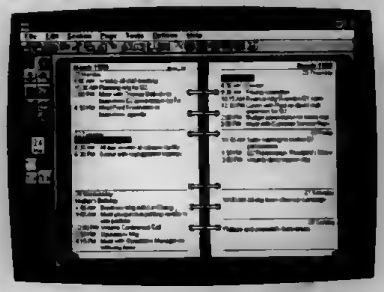

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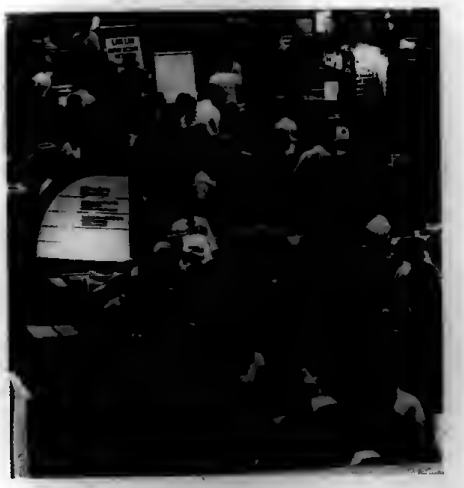

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ENERGIZE with Windows

Boost a sagging career through Windows development. Experts say job prospects look good.

By David Baum

to DEVELOPERS HAVE to work in the environments their employers have chosen, and many are choosing Windows.

"Most new PC installations these days are Windows installations. We're talking about 30 million PCs purchased last year alone," says John Rymer, an analyst at the Patricia Seybold Office Computing Group in Boston.

If your shop is moving to Windows and you want to move with it, be prepared to face two primary technical challenges, says Joel Diamond, co-founder of the Windows Users Group Network in Media, Pa. You must learn the C programming language and the Windows operating environment, including messaging, interface issues and memory management.

"If you want to learn about Windows programming from the pure root, that means C and C++ programming," Diamond says.

A good Windows programmer thinks of function first and then emphasizes the interface, he adds, making knowledge of C almost essential. But people wanting a quicker entry into Windows can turn to a host of visual programming tool sets, such as Microsoft Corp.'s Visual Basic, Gupta Corp.'s SQL Windows or Borland International, Inc.'s ObjectVision. These tools hide much of the complex, system-level C programming inherent in creating an application. Prepackaged building blocks help you build applications quickly.

Jeff McGroary, principal at The Aristos Co., a Windows consulting firm in Hartford, Conn., voices skepticism about this approach. "There's no such thing as a free lunch," he says. "If an application is that easy to develop, there has to be some overhead incurred. Ultimately, programmers must have the core skills in C to create a workstation full of solid, well-performing applications."

Required learning

Whether or not to learn C is a moot point because most employers require it. "What I typically hear from employers is this: a need for people with a C and possibly C++ background, a year of experience programming under Windows and an understanding of the Windows GUI," says Dan Shafer, editor of the "Inventive User Letter" and president of Graphic User Interfaces, Inc., a consulting firm in Redwood City, Calif. But knowing an event-driven environment, Windows or otherwise, is the key, Shafer adds. "Experience with Motif, Macintosh or OS/2 Presentation Manager will probably make you a reasonable candidate for most Windows positions," he says.

While you're at it, Diamond suggests that you become an expert in the use of a specific software package such as Borland's Paradox for Windows or Microsoft's Word for Windows. Many departmental workgroup applications are created by customizing these off-the-shelf packages by writing macros in Basic, C and a variety of other languages, he says.

"In the Windows world, this is how many applications that support day-to-day business transactions in a horizontal part of a company are created. It wouldn't be a bad idea to adopt a specialty, get to know one of these products inside and out and master its programming APIs," Diamond says.

Baum is a free-lance writer in Santa Barbara, Calif., who specializes in emerging technologies.

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Caught in a LANslide

Programmers are being asked to take on more LAN responsibility. Those who have done so say it's difficult but manageable.

By Julie Hart

If you're a mainframe programmer, take heed. Many of your peers are being pushed into the local-area network world. And you could be next.

For the past two years, Navajo Agricultural Products Industry in Farmington, N.M., has been moving to the LAN environment. "When I came on board, we were just starting to downsize," says programmer/analyst Rick Hoskie. "At the time, about three programmers left the company. I guess they just couldn't cope with the changes."

Programmers say learning about how LANs work is all part of the downsizing process. They share more ownership of LAN management than they did when working in the mainframe world, where a strict division of duties between systems administrator and applications programmer exists.

Of the new skills required, network troubleshooting is an essential one for some. "With a LAN, equipment just doesn't plug and play," Hoskie says. "There's a lot more involved than that. I had to learn a lot about Ethernet protocols, including data collisions and packet transfers."

This also means mastering network operating systems, including standards for file transfer and remote file management, printer handling and system recovery. The key is to keep the LAN up and running. Without adequate LAN knowledge, programmers asked to take on this additional responsibility will be stuck.

Paul Davis, lead programmer at Loral Control Systems in Archbald, Pa., needed to learn more about hardware, including the use of Open Data Interface and IPX drivers. "I wrote a program that I couldn't get to execute," Davis says. "If I were working on the mainframe, I would have called the systems programmer for help. But on the PC, I have to do the debugging myself, since it's likely that I caused the problem."

Knowing whether the LAN is optimized, or which drivers to use, makes a difference. "I was able to get the program to execute on my own," he says.

What's next?

Some of those who have already made the switch to the LAN arena, or are in the process, say learning to work with an object-oriented programming language is the next priority.

The Davies Can Co. in Solon, Ohio, for instance, programmed in Cobol and RPG before beginning its transition to LANs early last year. Now, programmers work with Powersoft Corp.'s PowerBuilder. Rather than move to the LAN environment cold turkey, programmers are still "babysitting the mainframe," says Glen Case, senior programmer. This gave programmers a chance to make mistakes. "We're almost ready to test our first payroll system," he adds.

"Using objects is hard to learn," Case says. "And not because it's technically difficult. It's more of an adjustment in thinking. In Cobol and RPG, we worked in a very structured environment; now, the structure is gone. But once you grasp the concept of reusable code, you realize its power over RPG."

By using the object-oriented approach, programmers spend more time thinking about how an application will be used rather than about how it will be created. "I can build better applications, since Visual Basic worries about the details," Davis says.

"The first time I used Visual Basic I thought I'd go nuts," he adds. "It's a whole new mind-set. Instead of writing code, I had to learn how to just ask for what I want."

Hart is a free-lance writer in San Jose, Calif.

Training jump start

If your company is pushing you toward LANs, prepare yourself for a few hurdles

Glen Case, senior programmer at The Davies Can Co., strongly recommends formal training for everything — from operating systems to development.

"We wasted about two months thumbing through manuals," Case says. To cut the learning curve, Davies' programmers eventually attended Microsoft Corp.'s University and a Powersoft Corp. PowerBuilder class. "When an instructor touched on a concept that appeared in the manual, we at least had an idea of what he was talking about."

"We're only allowed one training session per year."

Rick Hoskie, programmer/analyst, Navajo Agricultural Products Industry

Federated Rural Electric Co. in Jackson, Minn., also plans to move to the LAN environment in another six months or so. When the change occurs, programmer Steve Lawson says, application development will continue on the company mainframe. "I have to make sure that everyone has access to the mainframe from their PC, and I don't expect this will be easy."

If your company won't or can't send you to training, don't despair. "Born again" programmers say the true key to unlocking learning potential lies in your attitude.

"I learned everything the hard way — reading manuals," says Robert Conklin, data processing manager, programmer and systems administrator at Milwaukee Mack Sales, Inc. in Milwaukee. "But that's the way it is. I'm just glad we stayed in the DOS environment and I didn't have to learn Unix."

"The cost of education is the biggest hurdle. It can be about $10,000 to $15,000 or more per programmer."

Glen Case, senior programmer, The Davies Can Co.

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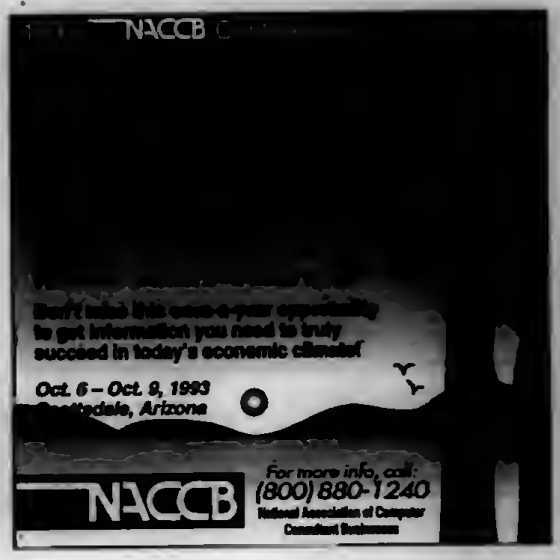

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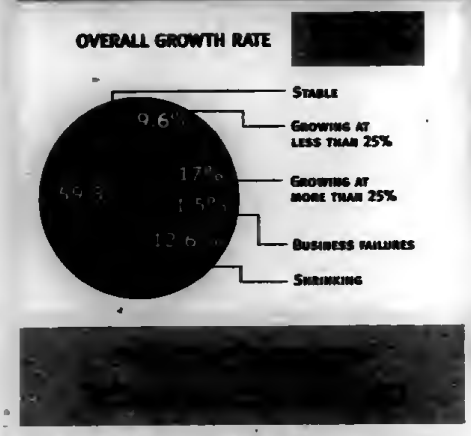

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All closings for space, camera-ready materials, and telephoned copy for pub-set advertisements are 3 p.m. Thursday (all continental U.S. time zones) 2 working days prior to the Monday issue. Blind box charges are $100 (U.S.) and $200 (Foreign).

Copy:

We'll typeset your ad at no extra charge. Please attach clean, typewritten copy. Figure about 25 words to a column inch, not including headlines. Minimum ad size is 2 column inches. Any special artwork should be enclosed with your ad also. Logos must be submitted on white bond paper for best reproduction.

Issue Date(s): ____________
(issued every Monday)

Name: ____________

Title: ____________

Company: ____________

Address: ____________

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Telephone: ____________

COMPUTERWORLD
CLASSIFIED ADVERTISING

Box 9171
Framingham, MA 01701-9171

First Data Corporation is the billion dollar baby.

We're just one year old, yet we've become a leading provider of information processing services to a variety of industries. The following positions are available at Cable Services Group, one of ten business units. It's just one more way we give you the advantage that the other kids on the block can't.

LAN ENGINEER

What It's All About:

- Act as the primary architect in developing business case material to support identified requirements for all Administrative LAN services.
- Manage budgets and act as a leader and teacher for all direct reports and related organizations, passing on knowledge and acquired skills.
- Research, develop and provide various reporting strategies to enhance the understanding of service level performance for internal and external users.

What It Requires:

- Bachelor's degree in MIS, Computer Science or Electronic Technology
- 5+ years experience in an IBM or compatible LAN environment
- 1+ years supervisory experience
- 2+ years experience with OS2 and DOS operating systems.
- 3+ years experience in a position requiring technical problem solving skills.
- Working knowledge of Novell netware and IBM LAN server.

SOFTWARE DESIGN ANALYST

DB2, SQL, Client Server: these are the areas of focus for the analyst we are looking for. This individual would be responsible for the evaluation, installation and enhancement of databases and associated EDA/SQL interfaces, as well as the supporting software needed for integrity maintenance. Technical assistance for the Sales and Customer Service areas would be provided by this individual, which involves measuring, evaluating and maintaining performance levels. Interaction with vendors on technical matters would also be an important part of this persons responsibilities. The minimum qualifications for the position are:

- 3 years experience in mainframe-based, on-line application development using COBOL, C and/or Assembler.
- 3 years experience in query application development and maintenance utilizing relational database (DB2) and SQL platforms, including database designs.
- Demonstrable understanding of and/or exposure to server systems, database administration and GUI platforms, LAN environments and distributed platforms.

We offer a competitive salary and benefits package. Interested candidates should apply in person or send a resume to:

FDC
CABLE SERVICES GROUP
Human Resources
First Floor
10825 Old Mill Road
Omaha, NE 68154

An Equal Opportunity Employer

PeopleSoft Professionals

Our clients have multiple openings at various levels for professionals who have worked with PeopleSoft products. If you have a minimum of 6 months experience installing, customizing or supporting this project you could qualify. Openings range from Programmers to Sr Project Managers. Salaries depend on experience. Call Jim Kwapick at (612) 339-9001 or fax/send resumes to Robert Half International, 2800 Norwest Center, 90 South 7th St., Mpls, MN 55402 (612) 349-6789

ROBERT HALF

Southeast

Computer Consulting Group has immediate openings on its southeast consulting staff for talented Programmer/Analysts. We're especially seeking

- **IMS or CICS or DB-2**
- **APS or CSP**
- **SAP - R/3**
- **CATIA**
- **VISUAL BASIC**
- **SQL WINDOWS**
- **MVS System Programmer**
- **INTERGRAPH/PDS**

Computer Consulting Group
Contract Professional Services

4109 Wake Forest Rd
Suite 307
Raleigh, NC 27609
1-800-222-1273
FAX (803)738-9123
Member NACCB

Experienced Software Professionals

Software Sales. Candidates will be extremely self-motivated and show proven success in sales or telesales. MVS, DB2 preferred. **Author/Developer.** Candidate will be an expert in system software development, BAL coding, MVS internals, SVCs and facilities. DB2, CICS a plus.

We offer lucrative base plus royalty or commission plan, high growth, and the best quality of life and location. Send information to Vice President, fax (704) 251-9047. Principals only.

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PERMANENT FL OPPTY S

DBAs Sybase DB2	$50K
P/As Powerbuilder	$42K
Tandem Cobol Tal Sql C	$45K
S/E Ada Oracle 2167	$45K
P/As C++ Windows OLE	$45K
P/A Framme Unix C	$45K
P/A S/A IEF DB2	$46K
P/As C DOS Btrieve	$43K
P/As Unix C Informix	$40K
P/As HP/UX C Xwindows	$42K
P/As AS 400 Cobol/RPG	$45K
P/A's CICS/IMS/DB2	$40K
P/As MVS Cobol M&D	$43K

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IDMS • ADS/O • C++

Send resume or call:

Computer Progress United
12730 Townepark Way
Louisville, KY 40243
(502) 245-6533

Programmer/Analyst - Moline IL - Enhance and modify software and applications in a client-server environment using object-oriented programming. Prepare specifications, use DB2, OS/2, ADW, Microfocus workbench, APS. Bachelor's degree in Computer Science or Engineering. 2 years experience. Must have 1 year experience using above software tools. 40 hours/week (9-6); $36,000/year. Must have proof of legal authority to work permanently in the U.S. Send TWO copies of resume to Illinois Dept. of Employment Security, 401 South State St. - 3 South, Chicago IL 60605. Att: Maxine Counts. Ref # V-IL 10675C. NO CALLS. An Employer Paid Ad.

We think Iowa City may surprise you. We *know* NCS is going to amaze you.

Surprising Iowa City, Iowa is the ideal location for anyone who wants to enjoy the best of big city life without the hassles of big city living. Our progressive university community blends a comfortable small town atmosphere with the cultural diversity usually found only in major metropolitan areas. Commutes here are short. Schools are excellent. And the cost of living is very affordable.

But best of all, Iowa City is where National Computer Systems is aggressively setting the pace for leadership in information collection products, processing services and management systems for education, business and finance. Our continuing success is creating rewarding opportunities for:

ANALYST PROGRAMMERS/SR. SYSTEMS ANALYSTS

These high-profile positions require 2-7 years programming experience in an IBM mainframe environment. Strong COBOL, CICS, JCL skills are essential. DB2 and Micro Focus COBOL experience preferred.

PC ANALYST PROGRAMMERS/SR. SYSTEMS ANALYSTS

To qualify, you'll need 2-5 years PC programming experience and a comprehensive understanding of Clipper, C, C++, and Windows. ADW CASE tools and Micro Focus COBOL experience preferred.

SR. SYSTEMS PROGRAMMERS

We're seeking industry wise professionals with 4-plus years experience developing and maintaining complex systems software programs. One year CICS development/support required. IBM S/390 assembler language preferred.

SR. IMAGING DATABASE ANALYST

Qualified candidates will have Sybase experience on a RISC/UNIX platform and 5-plus years experience with C, C++, and Motif in a Client Server Architecture.

In addition to an attractive relocation package, we offer competitive salaries, great benefits (401k and ESOP plans to name just two), and plenty of room to advance. To learn more, send your resume to: **Employment Representative, Dept. CW, National Computer Systems, P.O. Box 30, Iowa City, Iowa 52244.**

NCS™

Equal Opportunity Employer

Senior Programmer Analyst - Plan/develop/test/evaluate/document comp progs, design files & NATURAL/ADABAS/NATURAL SECURITY applic sys, meet w/ clients & their tech staffs to isolate/define sys & business probs & fashion solutions, prep sys doc for comp components, assist in tech eval of estimation process, test progs./initiate req'd corrections, lead sys. implement. at customer sites in coord. w/their staffs, dev tech expertise of custs & their staffs, lead/direct programmer/analysts & assist them in dev of applic sys, utilizing sys expertise to minimize costs, isolating/defining customer needs & fashioning cost/effect solutions. Teaching customers & their staffs NATURAL & other products. Bach., or equiv., in comp sci related field & 2 yrs exp in job offered or in sys analysis, req'd. Exp must incl NATURAL/ADABAS/NATURAL SECURITY. Travel in US req'd 70% of time. Must be willing to temporarily relocate for longer term jobs. $48,950. Apply at TEC, Dallas, TX, or send resume to TEC, TEC Bldg., Austin, TX 78778. JO#6844385. Ad paid by Equal Opportunity Employer

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Systems Analyst Programmer - 40 hrs/wk 8am-5pm $41,000/yr. To analyze user requirements, procedure and problems to automate processing and to improve existing computer systems, to develop new information processing systems, to improve production of work flow, to design and develop software applications on IBM 3090 using COBOL II, CICS, Relational Databases under MVS/XA environment and to port applications from IBM mainframe to IBM PC environment using on-line development tools (4GLs). Must have B.S. Degree or equivalent in Computer Science, Electronics Engineering or related field. Must have 2 years experience in software design and development environment on IBM mainframes. Must have knowledge of IBM 3090 under MVS/XA, COBOL II, CICS, SAS Relational databases with SQL and experience in IBM PC based applications. Must have proof of legal authority to work permanently in the U.S. and applicants should send resumes to Illinois Department of Employment Security, 401 South State Street - 3 South, Chicago Illinois 60605. Attn: Maxine Counts, Reference #V-IL 10676C. NO CALLS. An employer paid ad - send 2 copies of resume.

EDI Manager

Our business is growing and so is our need for successful individuals. We are looking for an EDI experienced person to head up the planning and development of EDI systems linking our factory, dealerships, and suppliers. If you have experience in EDI systems design and project management, and are looking for a leadership position we are interested in you. If you are looking for a growing entrepreneurship, and an environment that promotes family values and teamwork, you may be interested in us.

To learn more about this opportunity, please mail or fax your resume to Alan Hawkins, Director of Information Services, The Charles Machine Works, Inc., P.O. Box 66, Perry, Oklahoma 73077.

FAX: 405-336-3458

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Immediate openings now exist for:

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- **Client Server.........Open** C, C++, Unix, RDBMS

Please call or send resume in confidence to:

L. Robert Frank & Associates ***Ph. 800-741-3570***
2910 Bay to Bay Blvd., #207 ***813-831-6786***
Tampa, Florida 33629 ***Fax: 813-835-5025***

Midwest

PROGRAMMER ANALYST (REF. #56793) to consult with clients to ascertain & define their business reqs or problem areas & utilize tech expertise to provide solutions to clients' needs, incl analyzing, designing, developing & implementing comp s/ware for clients' EDP sys, incl analysis, design & development of an integrated welfare sys & hospital management sys. Responsibilities incl data modeling, process flow & data flow design, user liaison & tech support. Tech support provided will be design, coding & testing of applications using IBM 3090, IBM 4381, IBM PC compatibles, MVS/XA, MVS/ESA, TSO, IMS DB/DC, CICS, DB2, TELON, MICROFOCUS WORKBENCH, CLARION, COBOL, MF-COBOL, NEWVIEW, REXX, CLISTS, MSWORD & EZYTREVE. ED & EXP: Bachelor's in Comp Sc, Engg, Sys Anal or Math & 2 yrs exp in the job offered or 2 yrs exp as Sys Anal, Sys Prog, Prog, Prog/Anal, S/ware Engg or Consultant. Will accept 3 yrs of college ed plus 3 yrs of exp in the related occupation in lieu of the req ed & exp. REL EXP: in whole or in part, analysis & design of app sys; sys coding & testing, & using IBM 4381, IMS DB/DC, CICS, DB2, MICROFOCUS WORKBENCH & CLARION. $34,000/yr. 40 hr/wk.

SOFTWARE ENGINEER (REF. #50993) to consult with clients to ascertain & define their business reqs or problem areas & utilize tech expertise to provide solutions to clients' needs, incl analyzing, designing, developing & implementing comp s/ware for clients' EDP sys. Duties: Customizing & supporting A-Series IPS (Item Processing Sys) pkg, incl writing Req Definition spec., modification of various modules of A-IPS & BFS (Bulk Filing System), sys testing & DVT (Design Verification & Testing) of customized product. Customizing & support PTA (Proof & Transit Application) & RPA (Remittance Processing Application) on DP500 document processors. Responsibilities also incl tech support of DCH (Data Comm Handler) libraries, providing interface btwn a UNISYS high speed document processor (DP1800, DP1000) & UNISYS mainframe sys (A-series & V-series), customization of RPA & PTA apps in a networked client-server environment using UNISYS B30 line of workstations. ED & EXP: DP1800, 1000, 500, B30, UNISYS A-series op env, WFL, COMS, VCS, ALGOL, PASCAL, COBOL74, CP2000 network processor, DCDLP, 4ADLP Data-comm protocols & BTOS. ED & EXP: Bachelor's in Comp Sc, Engg, Sys Anal or Math & 2 yrs exp in the job offered or 2 yrs exp as Prog, Sys Prog, Prog/Anal, Sys Anal, S/ware Engg or Consultant. Will accept 3 yrs of college ed plus 3 yrs of exp in the related occupation in lieu of the required ed & exp. REL EXP: in whole or in part, development of app sys; customization & support of Item Processing Sys, & using UNISYS A-series, COBOL 74, COMS & ALGOL. $35,000/yr. 40 hr/wk.

SYSTEMS ANALYST (REF. #64893) to consult with clients to ascertain & define their business reqs or problem areas & utilize tech expertise to provide solutions to clients' needs, incl analyzing, designing, developing & implementing comp s/ware for clients' EDP sys, incl an analytical data management integrated network sys. Responsibilities incl process flow & data flow design, data modeling identification, tech support & overall design of application entry part of the sys, & meeting users to gather reqs. Tech support provided will be for design of applications using VMS on VAX using VMS, CMS, MMS, ORACLE V6.0 & V7.0 on VAX micro clusters. ED & EXP: Bachelor's in Comp Sc, Engg, Sys Anal or Math & 2 yrs exp in the job offered or 2 yrs exp as Prog, Sys Prog, Prog/Anal, Sys Anal, S/ware Engg or Consultant. Will accept 3 yrs of college ed plus 3 yrs of exp in the related occupation in lieu of the required ed & exp. REL EXP: in whole or in part, application development & using VAX/VMS, Micro VAX, & Clustered VAX. $34,000/yr. 40 hr/wk.

SYSTEM ENGINEER (REF. #65253) to consult with clients to ascertain & define their business reqs or problem areas & utilize tech expertise to provide solutions to clients' needs, incl analyzing, designing, developing & implementing comp s/ware for clients' EDP sys. Duties incl analysis & design of application s/ware sys, incl database modeling & data communication. Managing/modules of large application development projects. Duties req using IBM ES 9000 series sys running VM operating sys, IBM PCs, SQL/DS or DB2, VSE/VSAM, COBOL, FOCUS, AS, CICS, REXX, ASSEMBLER, ISPF, TSO, QMF, KEYPLAY, EXCELERATOR, DBASE, LOTUS WINDOWS, WORD, & C. ED & EXP: Bachelor's in Comp Sc, Engg, Sys Anal or Math & 2 yrs exp in the job offered or 2 yrs exp as Prog, Sys Prog, Prog/Anal, Sys Anal, S/ware Engg, Sys Engg or Consultant. Will accept 3 yrs of college ed plus 3 yrs of exp in the related occupation in lieu of the req ed & exp. REL EXP: in whole or in part, sys analysis & design; & using IBM ES/9000 Series, PCs, VM Operating Sys, DB2 or SQL/DS, VSE/VSAM, COBOL, FOCUS, CICS, REXX, ASSEMBLER, EXCELERATOR, LOTUS, DBASE & KEYPLAY. $34,000/yr. 40 hr/wk.

SYSTEMS ANALYST (REF. #65083) to consult with clients to ascertain & define their business reqs or problem areas & utilize tech expertise to provide solutions to clients' needs, incl analyzing, designing, developing & implementing comp s/ware for clients' EDP sys. Duties incl perform s/ware analysis, design & development required for maintenance & enhancements of app s/ware of document processors of networked payment processing sys. Responsibilities incl programming, debugging & solving problems with least impact on related app & easier upward migration of s/ware levels, tech support & training team members as needed using B39 comp with BTOS II operating sys using Pascal language with forms & BTOS debugger utilities. ED & EXP: Bachelor's in Comp Sc, Engg, Sys Anal or Math & 2 yrs exp in the job offered or 2 yrs exp as Prog, Sys Prog, Prog/Anal, Sys Anal, S/ware Engg or Consultant. Will accept 3 yrs of college ed plus 3 yrs of exp in the related occupation in lieu of the required ed & exp. REL EXP: in whole or in part, design, maintenance & enhancement of applications, using B39 BTOS II & Pascal with forms. $34,000/yr. 40 hr/wk.

SR ANALYST/PROGRAMMER (REF. #65393) to consult with clients to ascertain & define their business reqs or problem areas & utilize tech expertise to provide solutions to clients' needs, incl analyzing, designing, developing & implementing comp s/ware for clients' EDP sys, incl an integrated welfare sys. Responsibilities incl interfacing with user for reqs, planning, design, programming, testing, documentation & tech support. Tech support will be provided for the design & development of applications using IBM 3090, IBM PCs, MVS/ESA, TSO, ISPF/PDF, IMS DB/DC, TELON, File-AID, XPEDITER, COBTEST, JCL, Banyan Systems VINES LAN, MICROFOCUS COBOL/2 WORKBENCH, VS COBOL II, SPF & MS-WORD for PCs used for sys design. ED & EXP: Bachelor's in Comp Sc, Engg, Sys Anal or Math & 2 yrs exp in the job offered or 2 yrs exp as Prog, Sys Prog, Prog/Anal, Sys Anal, S/ware Engg or Consultant. Will accept 3 yrs of college ed plus 3 yrs of exp in the related occupation in lieu of the req ed & exp. REL EXP: in whole or in part, application sys design, sys testing & documentation, user interface; & using IBM 3090, MVS/ESA, TSO, ISPF/PDF, VS COBOL II & IMS. $34,000/yr. 40 hr/wk.

SYSTEMS ANALYST (REF. #64993) to consult with clients to ascertain & define their business reqs or problem areas & utilize tech expertise to provide solutions to clients' needs, incl analyzing, designing, developing & implementing comp s/ware for clients' EDP sys, incl analysis, design & development of an integrated welfare sys. Responsibilities incl gathering reqs from customers, analyze & design the process flow & data flow, overall design of Application Entry Module & tech support. Tech support provided will be for the application design using IBM 3090, MVS/ESA, IMS DB/DC, TELON, VS COBOL II, MICROFOCUS WORKBENCH, TSO/ISPF, REXX, CLIST. ED & EXP: Bachelor's in Comp Sc, Engg, Sys Anal or Math & 2 yrs exp in the job offered or 2 yrs exp as Prog, Sys Prog, Prog/Anal, Sys Anal, S/ware Engg or Consultant. Will accept 3 yrs of college ed plus 3 yrs of exp in the related occupation in lieu of the req ed & exp. REL EXP: in whole or in part, application sys design using IBM 3090, MVS/ESA, IMS DB/DC, TELON, MICROFOCUS WORKBENCH, TSO/ISPF & CLIST. $34,000/yr. 40 hr/wk.

SYSTEMS ANALYST (REF. #65193) to consult with clients to ascertain & define their business reqs or problem areas & utilize tech expertise to provide solutions to clients' needs, incl analyzing, designing, developing & implementing comp s/ware for clients' EDP sys. Duties incl design, development, implementation & support (production/criteria) for an application s/ware sys. Responsibilities incl process flow, data flow design, data modeling, identification, data base modifications, sys testing & meeting with users to gather reqs, administering the production Data Base & maintaining data communication network. Technical support will be for design of Applications using UNISYS A & V Series with CP2000 Comp, COMS, DMS II, COBOL, UNC (HGL), XGEN (HGL). ED & EXP: Bachelor's in Comp Sc, Engg, Sys Anal or Math & 2 yrs exp in the job offered or 2 yrs exp as Prog, Sys Prog, Prog/Anal, Sys Anal, S/ware Engg or Consultant. Will accept 3 yrs of college ed plus 3 yrs of exp in the related occupation in lieu of the req ed & exp. REL EXP: in whole or in part, application design, program or sys testing, & using UNISYS A Comp, DMS II COBOL & XGEN. $34,000/yr. 40 hr/wk.

Please send resumes to 7310 Woodward Ave, Rm 415, Detroit MI 48202 & include Ref # Employer Paid Ad.

DATA PROCESSING & OPERATIONAL RESEARCH MANAGER -Direct all computer related activities in all sites of the organization in the U.S. as well as overseas. Plan & coordinate data processing activities. Analyze software vendors to solve problems impeding computer processing. Develop the appropriate statistical analysis models & design the needed data experiments to aid in the evaluation of ongoing projects. Conduct feasibility studies & design simulation models to reflect on the proposed projects. Design operation research & optimization procedures to aid in the decision making process. Conduct training & educational seminars in all sites of the project including overseas offices. Design & develop programs/database systems capable of storing/retrieving Arabic text/databases. Position requires travel 1/4 time to locations both domestic & international. Salary, $53,000 for year 40 hours per week (9:00 a.m. - 5:00 p.m.) Requirements: Ph.D in Systems Theory & Engineering; Doctoral Thesis on Problem Solving within Finite Queuing Networks is required; Applicant must have completed one graduate level course in each of the following - Queuing Theory, Computer Center Management, Optimization Theory, Systems Simulation & Statistics for Engineering. Send resumes to: MESC, 7310 Woodward Ave., Rm. 415, Detroit, MI 48202 (Ref # 67793). Employer paid ad.

Programmer/Analyst to analyze business procedures and problems to refine data and conduct it to customized programmable form, studies existing programs to evaluate effectiveness, develops new programs to improve production specifics in detail logical and for mathematical operation to be performed by comprehensive computer programming, debug programs and train end users. Programming design for DEC, VMS and INGRES system. Requirements: B.S. in Math or Computer Science plus two years experience necessary. Experience must include DEC and VMS plus INGRES or some other relational database product. M.S. in Computer Science may substitute for one year of experience. Salary: $31,600 per year/40 hour work week. Qualified applicants to submit resume to: Illinois Department of Employment Security, 401 South State Street, 3 South Chicago, Illinois 60605. Attention: Maxine Counts. Refer to Job Order #VJL 10611C. Send two copies of resume. Must have proof of legal authority to work permanently in the U.S. An employer paid ad.

Programmer/Analyst - Analyze reqs, design, develop and implement infor and financial management applications using MAPPER 36R1 language on UNISYS 1100/2200 hardware. Develop interfaces with existing applications in the COBOL environment. Write ECLs using USERACESS for data transfer. Network UNIX MAPPER applications to UNISYS 1100/2200 hardware. 40 hrs./wk; 9AM-5PM. $44,000/yr. Req. B.S. in Comp. Sci. Math or Electronics/Electrical Engineering and 2 yrs exp. Employer Paid Ad. Send resumes to 7310 Woodward Avenue, Room 415, Detroit, Michigan 48202. Reference No. 71493.

Over 629,000 computer professionals read Computerworld weekly.

ANOTHER REASON WHY COMPUTERWORLD RECRUITMENT ADVERTISING WORKS ...

Computerworld reaches more highly skilled computer professionals than any other newspaper or magazine – Sunday, daily, or trade.

629,204 of them to be exact. And from JCL to Unix professionals, DEC VAX to IBM PC professionals, these job candidates have the skills your company needs.

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Hardware	IBM PC Compatible	507,673
	Hewlett-Packard	148,361
Languages/ Utilities	Cobol	405,325
	C	160,295
Operating Systems	Windows	327,404
	MS-DOS	504,203
Databases	DB2	180,974
	dBase	292,486
Communications	CICS	343,327
	Netview	99,769
Local Area Networks (LANs)	Novell/Netware	417,231
	Ethernet	284,618

SOURCE: Skill Survey of Computerworld's Audience, August 1992.

Call for a copy of our Skill Survey.

Computerworld erred. A similar advertisement ran in the December 21, 1992 issue of Computerworld. That advertisement incorrectly stated that the Skill Survey had been verified by the Audit Bureau of Circulations.

It is a fact that ABC audits our circulation figures but this study, conducted by IDG Research Services, was not verified by ABC.

To place your ad regionally or nationally, call John Corrigan, Vice President/Classified Advertising, at **800/343-6474 (in MA, 508/879-0700).**

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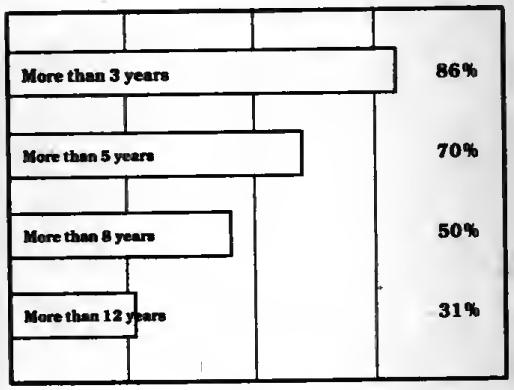
Where the qualified candidates look. Every week.

ANOTHER REASON WHY COMPUTERWORLD RECRUITMENT ADVERTISING WORKS ...

Computerworld gives you only qualified computer professionals.

Unlike the readers of Sunday or daily newspapers, every Computerworld reader is an experienced computer professional. In fact, the majority of Computerworld's audience has experience beyond three years. What's more, some subscribers have been reading Computerworld ever since its first issue in 1967. Simply put, Computerworld delivers far more than just job candidates - it delivers qualified job candidates.

Years in Current Job Function Reported by Computerworld's Audience of 629,204



Source: Skill Survey of Computerworld's Audience, August 1992.

To place your ad regionally or nationally, call John Corrigan, Vice President/Classified Advertising, at **800/343-6474 (in MA, 508/879-0700).**

COMPUTERWORLD

Where the qualified candidates look. Every week.

ANALYST/PROGRAMMER - 40 hrs./wk., 8am-5pm, $38,500/yr. To design and develop software systems for manufacturing applications utilizing the IBM 3090 mainframe, DB2, CICS and ADW CASE Tool. Carry out unit and automated testing and debugging of the systems. Require Bachelor's degree in Computer, Electrical or Mechanical Engineering, 2 yrs. expr. in job offered or 2 yrs. expr. as Programmer/Analyst/Engineering. Experience in systems analysis on the IBM 3090 utilizing CICS, COBOL and DB2. "Employer paid ad". E.O.E. Send resumes to: 7310 Woodward Ave., Rm. 415, Detroit, MI 48202. Ref. No: 68863.

Programmer/Analyst (Tampa, FL client sites) Analyze requirements, design, develop, code, test, implement & maintain systems for banking applics., using RPG III and RPG 400 in IBM S/38 & AS/400 environments. Bachelor's Degree in Comp. Sci., Engin'ing or Math + 2 yrs' exper. in job. $40,500/yr; 40 hr/wk, 8:30 a.m. - 5 p.m. Send resume to: JO# FL 0892372, Job Service of Florida, 2312 Gulf-to-Bay Blvd., P.O. Box C, Clearwater, FL 34618-4090.

Systems Analyst - client sites in metro Chicago area. Analyze, design, develop implement & maintain business systems. Provide technical support to end users. Utilize IBM mainframes; NATURAL 1.2, ADABAS, CICS, MVS & JCL software. Bachelor's deg/Computer Science or Physics or Math. 2 yrs/experience in job offered or 2 yrs as Programmer and/or Programmer/Analyst performing the above. Must have 1 yr experience using NATURAL 2.1, 2.2 and PREDICT CASE software. 35 hrs/wk (9-5). $42,000/yr. Must have proof of legal authority to work permanently in the U.S. Send resume in dupl to: Illinois Dept. of Employment Security, 401 South State St. - 3 South, Chicago, IL 60605. Att: Pete Kula. Ref# V-IL-10530-K. NO CALLS. AN EMPLOYER PAID AD

Systems Analyst (Houston, TX area client site). Analyze, design, program, and document commercial applications for IBM VM systems, using REXX and SQL/DS in a variety of hardware environments. 3 yrs. exp. in job req. 40 hrs/wk, 8:30-5, $45,000/yr. Apply at the Texas Employment Commission, Houston, TX, or send resume to the Texas Employment Commission, TEC Building, Austin, TX 78778, J.O. #TX6854147. Ad Paid by an Equal Opportunity Employer.

SENIOR SYSTEMS ENGINEER - 40 hrs./wk., 8am-5pm, $48,100/yr. DB2 database administrator to carry out data modeling, data analysis, physical DB2 database design, integration, migration, monitoring and performance tuning. Carry out forward & reverse engineering. Require Master's degree in Computer, Electronic or Mechanical Engineering, 5 yrs. expr. in job offered or 5 yrs. expr. as Systems Analyst/Consultant/Database Administrator. Experience in database design, implementation & administration on IBM 3090 with CICS, DB2 & NATURAL s/w & in data modeling & re-engineering w/BACHMAN CASE Tools. "Employer paid ad". E.O.E. Send resumes to: 7310 Woodward Ave., Rm. 415, Detroit, MI 48202. Ref. No: 62493.

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Recruit qualified computer and communications professionals with the *IDG Communications Computer Careers Network* of five leading computer newspapers. For more details. Call Lisa McGrath at:

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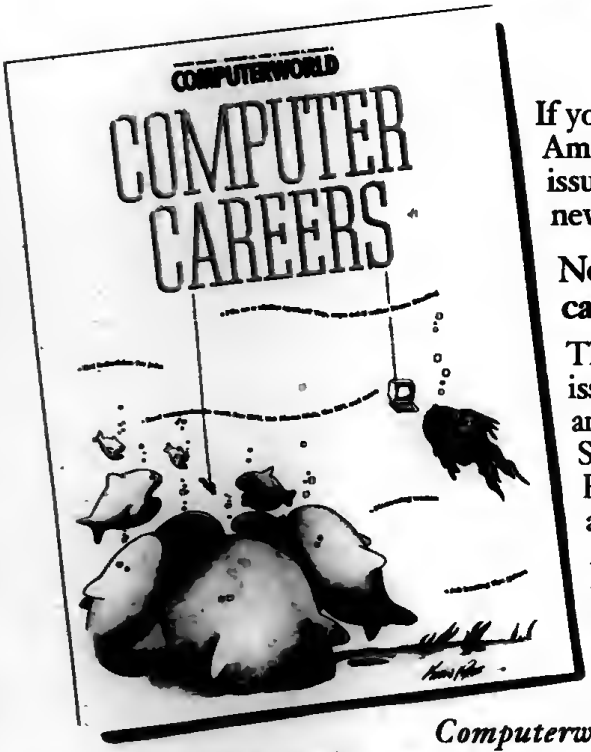
Issue Date: October 31, 1993
Close: September 17, 1993



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Planned Editorial Features:
(subject to revision)

- Companies where computer career students want to work. And their top choices for: Information Systems, Engineering, Sales & Marketing, Technical Support, Research & Development.
- Information Systems salaries from Computerworld's annual survey with the Association for Systems Management
- And much more!

Don't forego experience

Technical certifications are all the rage but often lack the ability to qualify real-world experience

USER'S VIEW

■ Cocks is a networking specialist with more than 13 years of experience. He recently completed his CNE certification.

By Edward Cocks

When shopping for network professionals to add to your staff, you may be using technical certifications as a prerequisite for hiring. But, even though these certifications are in demand right now, hiring companies should be wary. Certifications often require no on-the-job training to pass, and you could wind up with employees who have less real-world experience than you had bargained for.

In the last year, I've had many conversations regarding this trend, and one feeling is common: Depending on experience, many certified people sorely need a reality check when it comes to running production networks. In my opinion and those of my colleagues, realistic network environments cannot be taught in static classrooms.

These programs are good for training vendors, but advanced courses are too vendor-specific and lack the means to evaluate production experience in a multi-product environment. Even Microsoft Corp. and Novell, Inc. insist their programs are designed to establish a baseline of knowledge, allowing individuals to progress into a specialized area.

"Just as an MBA doesn't make the individual an expert in business, the Certified NetWare Engineer indicates that they have the basic knowledge and awareness of the products to the point where they can pass an in-depth test," says K. C. Sue, director of education and marketing at Novell.

Celeste Boyer, development manager at Microsoft's Information Certification and Education Division, agrees, stressing that the Microsoft Certified Professional certification should be one criterion in evaluating a job applicant.

Big buy-in

Nonetheless, some companies are buying into certifications in a big way. They have made certification a prerequisite to employment.

Earlier this year, for instance, a senior Citicorp systems manager told me his company employs more than 200 CNEs. This is considerably more than the number most Novell vendors and large systems integrators employ, and it qualifies Citicorp to be a platinum-level systems integrator.

I thought I had missed something until a director of information systems for a large city/county government expressed the frustration he felt while searching for a qualified network designer/architect. He advertised for CNEs with three years of local- and wide-area networking experience, but out of 20 applicants, only four had marginal levels of experience. He be had cut himself off from experienced people who did not apply because of the required certification.

Get generic standards

It's understandable that resellers and manufacturers need to hire these people to sell and support their products. It's also possible to understand how large companies such as Citicorp can commit to hiring and maintaining that level of expertise. But what about the mid-size company whose shops have the most diverse product mixes and where interoperability is a way of life?

Groups such as the Institute for the Certification of Professionals, the Local Area Network Dealers Association and the Microcomputer Managers Association are working to establish generic non-vendor-specific certification levels, but they are not available yet. In the meantime, training companies are the ones benefiting from the hoopla: They are being deluged with students seeking courses that will prepare them for certification tests.

Until we accept generic certifications for PC specialists, network administrators, engineers and analysts and then look for product specialization, many managers and personnel administrators would be better off increasing experience requirements rather than expecting the vendors to solve their screening problems.

HEAD COUNT

Novell, Inc.'s technical certifications are on the rise

Certified NetWare Engineers (CNE)	[redacted]
CNEs who have gone on to become Enterprise Certified NetWare Engineers	1[redacted]
Certified NetWare Administrators	[redacted]

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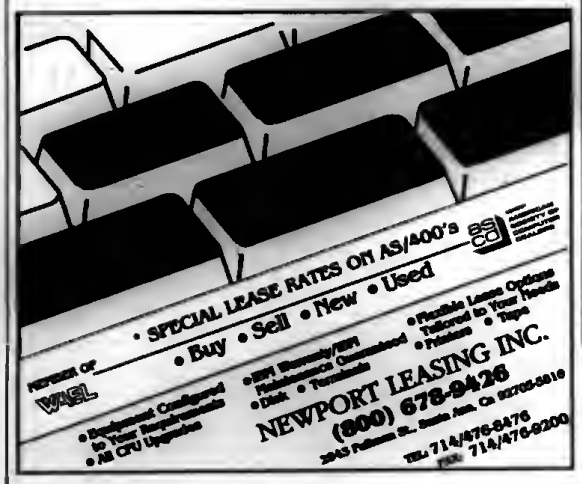

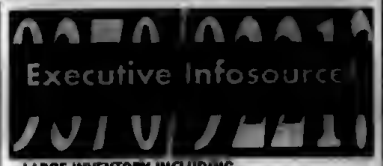

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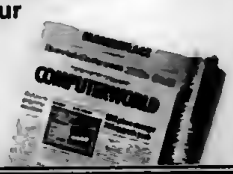

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Gainers / Losers

Percent

Gainers		Losers	
Sequoia Systems Inc.	70.9	System Software Assoc.	-20.2
Netrix Corp.	46.9	Sybase Inc.	-18.8
McAfee Associates	25.0	Egghead Discount Software	-18.1
Chips and Technologies(H)	22.2	Easel Corp	-14.3
Cray Computer	21.7	IPL Systems Inc.	-13.3
Corel Corp.(H)	19.4	Lotus Development	-13.1
Gateway Communications	17.5	IMRS	-11.8
Parallan Computer(H)	16.8	Conner Peripherals	10.9

Dollar

Gainers		Losers	
Newbridge Networks Corp.(H)	7.25	Sybase Inc.	-13.75
Bell Atlantic Corp	4.75	Cabletron Systems	-5.75
Autodesk Inc.	4.63	Lotus Development	-4.63
Corel Corp.(H)	4.50	System Software Assoc.	-4.50
AT&T	4.13	Progress Software Corp.	-4.25
3COM Corp	3.75	Microsoft Corp	-3.75
Scientific Atlanta Inc.	3.75	Platinum Software	-2.75
Intelligent Info. Systems	3.25	Xilinx(H)	-2.50

[redacted]

Workstation high jinks

Intergraph Corp. (INGR), an engineering workstation vendor that has struggled in that market recently, sparked some curiosity last week by announcing a Shareholder Rights Plan. The plan, commonly known as a "poison pill," was designed to discourage hostile takeover bids.

The plan will not prevent a friendly buyout or merger. It should encourage potential buyers to "negotiate appropriately" with Intergraph instead of taking it by force, according to the company's statement. Intergraph also said the move was "not adopted in response to any specific attempt to acquire control of the company."

Neeraj Vohra, an analyst at Standard & Poor's Corp., agreed that the Shareholder Rights Plan serves as a very effective security system. "If there was something going on, that should put a damper on it," he said.

However, Vohra questioned Intergraph's assertion that no specific deal was brewing. "Typically, they only do this if there's a threat," he said. "It takes a lot of effort to put this together. If you're a company that hasn't made money in several quarters, you better be spending time on something constructive," Vohra said.

Vohra noted that Intergraph's more constructive recent moves include announced ports of its computer-aided design and engineering software to **Silicon Graphics, Inc.**'s (SGI) workstations and to **Microsoft Corp.**'s (MSFT) Windows NT operating system.

Meanwhile, workstation rivals Silicon Graphics and **Sun Microsystems, Inc.** (SUNW) are also commanding a lot of Wall Street attention these days but for different reasons than Intergraph.

Despite doubts raised among customers [CW, Aug. 23] and some evident investor reticence (Sun issues were near its 52-week low last week), analysts said they like Sun's prospects. New SPARCcenter products improve the company's standing in the server market. Also, although Sun shipped several new products late during the past few quarters, it has maintained its market share. "Clearly they must have been doing something right, or else their customers wouldn't have stayed around," said Laura Conigliaro, a computer analyst at Prudential Securities, Inc.

Silicon Graphics has raised its profile with heavy exposure in the blockbuster movie *Jurassic Park* and with moves into the consumer sector. Last week the company announced it will license chip technology to Nintendo for use in a three-dimensional game system due out in 1995. Several analysts recommended purchase of Silicon Graphics shares.

—Derek Slater

Exch	52-Week Range			Aug. 27 3 pm	Wk Net Change	Wk Pct Change
Communications and Network Services						[illegible]
OTC	40.00	11.00	3COM Corp	26.88	3.75	16.2
NYS	83.63	63.38	American Info Techs Corp	83.61	3.00	3.7
NYS	65.00	40.63	AT&T	62.25	4.13	7.1
OTC	4.08	0.75	Artel Communication Corp	3.56	0.13	3.6
OTC	24.50	11.50	Banyan Systems Inc.	18.00	0.00	0.0
NYS	61.13	44.50	Bell Atlantic Corp	61.13	4.75	8.4
NYS	18.88	46.75	BellSouth Corp	57.13	2.50	4.6
NYS	14.75	3.61	Bolt, Beranek & Newman	11.38	1.13	-9.0
OTC	18.50	9.50	Brooktrout Technology	12.25	1.75	16.7
NYS	139.00	56.50	Cabletron Systems	108.00	5.75	-5.1
OTC	30.25	5.88	Centigram Communications	28.25	-1.00	-3.4
OTC	55.50	20.25	Chipcom Corp (H)	51.75	0.50	1.0
OTC	59.25	22.63	Cisco Systems Inc.	51.50	2.00	-3.7
OTC	14.38	5.50	Compression Labs Inc	14.25	0.88	6.5
OTC	36.00	14.75	CrossComm	25.50	-0.25	1.0
OTC	4.63	1.44	Data Switch Corp	2.75	-0.19	-6.4
NYS	19.88	12.38	Digital Comm. Assoc.	14.00	0.13	0.9
OTC	17.75	3.75	Digital Systems Int'l Inc	4.88	0.00	0.0
OTC	63.00	6.38	DSC Communications(H)	62.88	2.75	4.6
OTC	9.50	4.75	Fibronics Int'l Inc.	5.13	-0.13	-2.4
OTC	24.00	8.75	FileNet Corp	13.75	1.00	7.8
OTC	4.38	1.50	Gandalf Technologies Inc.	2.63	0.13	-4.5
OTC	2.06	0.75	Gateway Communications	1.06	0.16	17.5
NYS	15.75	3.00	General DataComm Inds	12.25	0.63	5.4
ASE	3.75	2.00	Go Video	2.38	-0.06	-2.8
NYS	37.75	32.38	GTE Corp.	36.50	1.38	3.9
NYS	94.38	62.75	ITT Corp. (H)	93.63	1.13	1.2
OTC	29.88	16.25	MCI Communications Corp	26.50	-1.38	-4.9
OTC	4.50	1.50	Microcom Inc.	1.81	0.06	3.6
OTC	24.25	3.50	Netrix Corp.	5.88	1.88	46.9
OTC	19.00	7.00	Network Computing Devices	7.75	-0.25	-1.1
NYS	15.00	5.38	Network Equipment Tech	9.63	0.38	4.1
OTC	30.13	8.00	Network General	12.63	-0.25	1.9
OTC	15.75	6.88	Network Systems Corp	8.38	0.38	4.7
OTC	73.50	7.88	Newbridge Networks Corp (H)	73.50	7.25	10.9
NYS	46.00	21.38	Northern Telecom Ltd	26.13	0.75	3.0
OTC	35.25	17.63	Novell Inc.	19.25	-1.75	-8.3
NYS	92.50	29.00	Nynex Corp	89.00	1.00	1.1
OTC	30.00	14.50	Octel Communications Corp	20.00	0.00	0.0
OTC	6.13	3.38	Penril Data Comm Networks	4.00	0.11	2.2
OTC	30.50	10.75	PictureTel Corp.	14.50	1.00	-5.7
OTC	15.25	3.61	Proteon Inc.	5.13	0.69	15.5
NYS	36.00	17.00	Scientific Atlanta Inc.	36.00	3.75	12.6
NYS	44.00	31.75	Southwestern Bell Corp. (H)	44.00	2.25	5.4
NYS	36.88	22.25	Sprint Corp	36.88	0.75	2.1
OTC	27.00	12.50	Standard Microsystems Corp	19.13	0.00	0.0
OTC	18.50	8.25	StrataCom Inc.	13.00	-0.25	-1.9
OTC	62.75	11.50	SynOptics Communications	28.63	0.38	1.3
OTC	6.63	2.88	Telebit Corp (L)	4.75	0.00	0.0
OTC	13.75	2.38	Telematics Int'l Inc. (H)	12.88	1.00	8.4
OTC	28.75	14.00	US Robotics(H)	29.00	-0.50	-1.7
NYS	47.75	35.25	U S West Inc.	46.00	1.11	2.5
OTC	96.00	18.75	Wellfleet Communications	49.63	-2.15	-4.1
OTC	19.00	7.25	Xircom	17.75	0.00	0.0
PCs and Workstations						[illegible]
OTC	5.56	2.50	Advanced Logic Research	3.13	0.75	8.7
OTC	65.75	25.25	Apple Computer Inc.	26.38	-1.13	-4.1
OTC	24.25	12.00	AST Research Inc.	14.75	-0.25	-1.7
NYS	9.25	2.50	Commodore Int'l	3.38	-0.13	-3.6
NYS	81.75	31.00	Compaq Computer Corp	52.75	0.13	0.2
OTC	49.88	13.50	Dell Computer Corp	18.00	-1.75	-8.9
NYS	89.25	50.25	Hewlett Packard Co	73.88	0.50	0.7
NYS	41.00	17.61	Silicon Graphics(H)	39.38	1.13	2.9
OTC	41.00	24.00	Sun Microsystems Inc.	25.13	-1.25	-8.5
NYS	32.38	21.38	Tandy Corp.	29.50	-0.13	-0.4
OTC	7.00	2.75	Zeos International Ltd.	3.13	-0.13	-3.8
Large Systems						[illegible]
ASE	15.13	4.63	Amdahl Corp	4.61	-0.44	8.3
NYS	8.75	3.63	Convex Computer	4.50	0.63	16.1
OTC	6.13	2.25	Cray Computer	3.50	0.63	21.7
NYS	30.88	19.00	Cray Research Inc.	22.88	2.11	40.2
NYS	13.88	7.63	Data General Corp	9.00	0.00	0.0
NYS	49.25	30.38	Digital Equipment Corp	80.63	2.50	6.6
NYS	44.00	28.38	Harris Corp	41.00	-1.63	-3.8
NYS	88.75	40.63	IBM	43.75	0.75	1.7
OTC	22.00	5.50	Kendall Square Research	30.25	0.75	1.3
NYS	134.88	83.00	Matsushita Electronics(H)	133.38	1.88	1.4
OTC	23.75	8.25	NetFrame	14.13	-0.63	-4.2
OTC	80.00	9.25	Parallan Computer(H)	20.00	2.88	16.8
OTC	22.63	6.00	Pyramid Technology(H)	22.63	2.38	11.7
OTC	24.00	11.75	Sequent Computer Sys	15.25	1.38	9.9
OTC	8.75	1.38	Sequoia Systems Inc	3.31	1.38	70.9
NYS	48.38	20.25	Stratus Computer Inc	25.38	0.25	1.0
NYS	16.88	8.50	Tandem Computers Inc. (L)	8.75	-0.13	-1.4
OTC	29.50	10.63	TriCord Systems	19.15	-0.15	-0.6
NYS	13.88	7.75	Unisys Corp.	11.00	-0.13	-1.1
Software						[illegible]
OTC	37.00	12.63	Adobe Systems Inc.	20.75	-0.50	2.4
OTC	20.75	10.25	Aldus Corp.	17.50	0.13	0.7
OTC	11.25	5.50	American Software Inc.	7.00	-0.38	-5.1
OTC	28.13	9.50	Ask Computer Systems	11.38	0.50	4.6
OTC	50.75	38.75	Autodesk Inc.	45.61	4.63	11.3
OTC	9.25	2.50	Bachman Info. Systems	4.00	0.38	10.3
OTC	43.00	29.00	BGS Systems Inc.(L)	29.00	1.00	3.3
OTC	84.13	38.75	BMC Software Inc.	58.11	-0.63	1.1
OTC	28.25	18.00	Boole & Babbage	23.63	-0.75	-3.1
OTC	49.00	15.25	Borland Int'l Inc.	17.75	1.00	-5.3
OTC	5.00	2.75	CE Software	3.13	0.13	6.2
ASE	39.63	9.66	Cheyenne Software Inc. (H)	37.75	0.38	1.0
OTC	19.50	8.25	ChipSoft	15.00	1.88	14.3
OTC	8.88	5.63	Cognos Inc	8.13	-0.25	3.0
NYS	31.38	13.50	Computer Associates	30.00	-0.13	-0.4
NYS	11.25	2.75	Computervision Corp.	3.38	0.38	12.5
OTC	34.25	19.25	Compuware Corp.	28.00	0.13	0.4
OTC	14.75	5.75	Comshare Inc.	7.50	-0.75	9.1
OTC	27.75	10.75	Corel Corp. (H)	27.75	4.50	19.4
OTC	15.25	5.00	Easel Corp	6.00	-1.00	-14.3
OTC	75.75	12.00	4th Dimension	19.00	-0.88	-4.4
OTC	19.50	5.25	Frame Technology	7.75	0.13	1.6
OTC	17.50	8.38	Group I Software	10.00	-0.50	-4.8
OTC	35.25	14.50	Gupta	17.75	-1.00	5.5
OTC	10.25	4.13	Hogan Systems Inc.	8.88	-0.38	-4.1
OTC	25.75	11.25	IMRS	18.75	-2.50	-11.8
OTC	38.75	21.00	Information Resources(H)	37.75	1.38	3.8
OTC	27.25	9.25	Informix Corp	20.25	-0.75	-3.6
OTC	16.75	8.50	Intergraph Corp.	11.00	1.00	10.0
OTC	13.61	6.00	Interleaf Inc.	7.00	0.13	1.8
OTC	19.00	4.75	Intersolv Inc.	8.75	1.00	13.8
OTC	16.00	7.75	KnowledgeWare Inc.	10.75	0.63	6.7
OTC	54.75	15.50	Legent Corp.	19.75	-1.25	-6.0
OTC	40.13	14.25	Lotus Development	30.75	-4.61	-13.1
OTC	23.00	5.13	MathSoft(L)	5.13	-0.38	-6.8
OTC	23.75	4.50	McAfee Associates	50.00	2.00	25.0
OTC	11.61	2.00	Meca Software	5.50	-0.25	-4.3
OTC	12.00	5.25	Mentor Graphics	9.75	0.88	9.9
OTC	46.00	26.25	Micro Focus	30.25	0.38	1.3
OTC	13.75	4.38	Micrografx Inc.	6.63	0.25	3.9
OTC	98.00	70.38	Microsoft Corp	71.25	-3.75	-5.0
OTC	56.38	17.25	Oracle Corp (H)	51.25	-2.00	-3.8
OTC	19.75	18.38	Parametric Technology(H)	37.25	-1.38	-3.6
OTC	40.50	22.50	PeopleSoft	33.88	2.38	-6.4
OTC	7.13	3.50	Phoenix Technologies	4.13	-0.75	-5.7
OTC	40.00	22.00	Powersoft	27.50	-1.25	6.0
OTC	61.50	17.00	Platinum Software	37.25	2.75	-6.9
OTC	75.00	10.75	Platinum Technology	13.00	-0.75	-5.5
OTC	61.50	12.25	Progress Software Corp	48.25	-4.25	-8.1
OTC	7.38	2.56	Quarterdeck Office Sys.	3.06	0.06	2.1
OTC	32.00	15.00	Rainbow Technologies Inc.	27.50	-1.00	-3.5
OTC	11.25	4.00	RasterOps(H)	30.38	0.00	0.0
OTC	15.25	3.63	Ross Systems	10.25	0.75	7.9
OTC	27.75	9.63	Sapiens Intl. Corp. N.V.	22.75	-0.75	3.2
OTC	14.50	3.50	Software Publishing Corp.	7.11	0.13	1.8
OTC	14.13	2.63	Software Toolworks Inc.	13.38	0.50	3.9
OTC	2.75	0.75	Spinnaker Software	1.63	0.06	4.0
OTC	13.75	3.75	State of the Art(H)	12.88	0.61	5.1
NYS	24.63	15.00	Sterling Software Inc	22.63	-0.50	-2.2
OTC	21.63	8.00	Struct. Dynamics Research	20.50	0.63	3.1
OTC	77.50	29.00	Sybase Inc.	58.50	-13.75	18.8
OTC	18.63	5.88	Symantec Corp.	15.75	0.63	4.1
OTC	25.50	10.00	System Software Assoc.	17.75	-4.50	-20.2
OTC	6.38	2.75	Triadic Corp	4.13	0.13	3.1
OTC	24.00	11.25	ViewLogic Systems(H)	22.00	0.25	1.1
OTC	23.50	5.50	Walker Interactive Systems	6.00	0.25	4.3
OTC	3.19	1.00	Wordstar(L)	1.13	0.06	5.8
Semiconductors						[illegible]
NYS	32.88	8.38	Advanced Micro Devices	11.13	0.25	0.8
NYS	24.00	9.38	Analog Devices Inc.(H)	23.50	-1.00	-4.1
OTC	35.00	8.00	Atmel Corp.	33.38	0.88	2.7
OTC	5.88	2.75	Chips and Technologies (H)	5.50	1.00	22.2
OTC	39.75	13.00	Cirrus Logic	26.00	0.00	0.0
NYS	16.75	7.88	Cypress Semiconductor Corp	15.00	-0.88	5.5
NYS	19.00	9.88	Dallas Semiconductor	17.13	-1.38	-7.4
OTC	67.25	28.81	Intel Corp (H)	63.75	0.25	0.4
NYS	19.25	5.25	LSI Logic Corp	27.25	-0.63	-3.3
OTC	24.25	11.66	Lattice Semiconductor	23.75	-0.50	2.2
NYS	56.50	14.38	Micron Technology(H)	51.50	-1.25	-2.4
NYS	99.13	41.38	Motorola Inc (H)	95.63	-0.38	-0.4
NYS	39.50	9.88	National Semiconductor	18.25	-0.25	-1.4
OTC	35.75	6.50	Sierra Semiconductor	8.25	0.86	11.9
OTC	51.25	24.50	SynOpsys	48.00	-2.00	-4.0
NYS	84.25	38.13	Texas Instruments(H)	80.75	0.38	0.5
OTC	15.13	8.50	VLSI Technology	11.63	0.00	0.0
OTC	13.75	2.63	Weitek	12.00	-0.62	-5.0
ASE	9.63	3.63	Western Digital Corp.	5.75	-0.13	-2.1
OTC	46.25	14.50	Xilinx(H)	42.50	-2.50	-5.6
OTC	33.00	15.84	Zilog Inc.	30.25	-0.75	2.4
Peripherals and Subsystems						[illegible]
OTC	48.00	15.63	American Power Conversion	43.75	1.25	2.8
OTC	20.16	15.50	BancTec Inc.	18.25	-0.50	-2.7
OTC	18.00	3.75	Cambex Corp	3.75	-0.25	-6.3
ASE	18.38	3.88	Cognitronics Corp.	5.38	-0.50	-8.5
NYS	25.50	9.00	Conner Peripherals	11.25	1.38	10.9
OTC	38.50	13.00	Creative Technologies Inc	20.25	-0.61	-2.9
OTC	30.75	11.00	Data Race Inc.	13.75	0.50	3.8
ASE	13.75	4.75	Dataram Corp.	7.88	-0.75	-8.7
NYS	34.25	5.36	EMC Corp (H)	32.88	0.50	3.5
OTC	10.50	5.38	Emulex Corp.	6.63	-0.75	-10.2
OTC	19.00	13.25	Evans & Sutherland	16.75	-0.25	-3.5
OTC	25.00	2.50	Exabyte	10.00	-0.11	-1.2
OTC	30.25	7.13	Intelligent Info. Systems	30.25	3.25	12.0
OTC	8.88	3.38	Iomega Corp (L)	3.75	0.13	3.4
OTC	15.25	5.75	IPL Systems Inc.	6.50	-1.00	-13.3
OTC	24.00	14.25	Komag Inc.	20.75	-2.25	-10.0
OTC	19.63	4.38	Maxtor Corp.	6.50	0.13	2.0
OTC	10.75	5.75	Micropolis Corp.	7.25	0.00	0.0
NYS	117.00	97.00	3M Corp	108.63	1.13	1.0
OTC	7.75	4.00	Printronix Inc.	6.50	-0.50	-7.1
NYS	17.25	6.88	QMS Inc.	9.00	-0.25	-2.7
OTC	17.88	9.50	Quantum Corp.	12.00	-0.88	-6.9
OTC	7.38	3.11	Radius Inc.	4.50	0.25	5.9
NYS	16.50	9.13	Recognition Equipment	15.75	1.25	8.6
OTC	13.88	3.75	Rexon Inc.	4.50	-0.50	-10.0
OTC	22.38	12.00	Seagate Technology	19.61	-0.88	-4.1
NYS	45.00	18.00	Storage Technology	29.13	2.11	2.9
NYS	27.88	17.63	Tektronix Inc.	25.13	0.50	2.0
NYS	88.88	70.25	Xerox Corp	74.13	-0.50	-0.7
Services						[illegible]
OTC	23.75	14.88	American Mgmt. Systems	17.75	0.00	0.0
NYS	4.75	2.38	Anacomp Inc.	3.00	-0.11	-6.0
OTC	35.75	16.75	Analysts Int'l	34.75	0.13	0.4
NYS	56.13	43.00	Auto Data Processing	47.88	-0.38	-0.8
NYS	17.25	13.00	Ceridian Corp	16.88	1.50	9.8
NYS	17.38	13.13	Comdisco Inc	14.38	0.06	0.0
OTC	9.50	4.50	Computer Horizons(H)	9.25	0.00	0.0
NYS	91.63	64.00	Computer Sciences(H)	88.25	-2.00	-2.2
NYS	9.75	6.00	Computer Task Group	6.00	-0.38	-5.9
NYS	40.50	19.00	CompUSA Inc.	26.38	-1.00	-3.7
OTC	14.25	6.00	Corporate Software	11.00	0.00	0.0
OTC	12.75	6.63	Egghead Discount Software	7.38	-1.63	-18.1
NYS	35.88	26.00	General Motors E (EDS)	30.25	0.13	0.4
OTC	25.50	10.50	Inacom Corp.	20.50	1.50	7.9
OTC	17.38	8.13	Intelligent Electronics(H)	16.50	-0.63	-3.6
OTC	11.25	7.00	Merisel	13.25	0.88	7.1
OTC	24.50	5.75	MicroAge Inc.	21.75	-0.25	-1.1
OTC	44.75	26.75	Paychex	30.50	1.33	4.6
NYS	87.75	21.63	Policy Management Sys.	21.88	-0.25	1.0
NYS	43.63	20.75	Reynolds and Reynolds	41.00	-2.13	-4.9
OTC	38.75	11.38	SEI Corp.(H)	18.13	1.13	6.6
OTC	24.38	17.50	Shared Medical Systems	22.50	1.75	8.4
OTC	12.63	5.25	SHL Systemhouse	10.38	0.13	1.2
OTC	30.75	20.00	Software Spectrum Inc.	25.00	0.75	1.0
OTC	39.25	23.75	SunGard Data Systems	38.75	-0.25	-0.2
NYS	4.38	1.13	Ultimate Corp	2.88	-0.13	-4.2

KEY: (H) – New annual high reached in period (L) – New annual low reached in period

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Briefs

Sequoia posts profit

Sequoia Systems, Inc. in Marlboro, Mass., reported a net profit for its fourth quarter but an overall loss for the year. Revenue for fiscal 1993, ended June 30, was $41 million and its net loss was $31 million. That includes $17.8 million in charges related to restructuring and settlement of class action litigation. For fiscal 1992, Sequoia reported a net loss of $3.9 million, on revenue of $62.6 million. For the fourth quarter, the firm achieved net profits of $750,000, on revenue of $10.5 million. This compares with revenue of $15.3 million and a net loss of $3.7 million, recorded in the same period a year ago. Fourth-quarter 1993 results include a $575,000 contribution to settlement of a shareholder suit.

Tech stocks stay flat

"The Red Herring Tech 200," an index of the Top 200 high-growth tech stocks, dropped only 0.2%, narrowly avoiding a summer slump. While wide-area network stocks increased by 7.9%, followed by semiconductor stocks at 7.8%, enterprise computing stocks dropped 14.5%. "Riding the client/server wave is proving profitable for many companies, and those who missed the wave are sinking," editor Zachary Herlick said.

CEO suit moved

An investigation targeting Symantec Corp. President and Chief Executive Officer Gordon E. Eubanks Jr. and Executive Vice President Eugene Wang has been turned over to the California State Attorney General's office. Wang is accused by his former employer, Borland International, Inc., of spiriting away confidential information.

SHORT TAKE Eric B. Kim was elected vice president of new technology at Dun & Bradstreet Corp. He was vice president of advanced technologies at D&B.

Healthy HP feels a few twinges

Despite a profit gain, sputtering mainframe alternative program raises red flag

By Mark Halper
PALO ALTO, CALIF.

While the bloom has not fallen off the financial rose at Hewlett-Packard Co., the atypically profitable hardware company is, by its own account, feeling a few thorns in its side.

Despite HP's recently reported 44% profit gain — especially impressive in the face of wilting margins at other hardware suppliers — its earnings of $271 million for the third quarter ended July 31 fell short of analysts' expectations.

Hambrecht & Quist, Inc. analyst Robert Herwick said HP's numbers came in about 10% less than expected.

Profit squeeze?

An HP spokeswoman claimed that much of the perceived profit shortcomings resulted from slowness in the company's electronic test and measurement business, where sales dipped from $557 million in the same quarter a year ago to $554 million as the defense market continues to weaken. However, analysts pointed out that HP appears to be facing a profit squeeze from both ends of the computer market.

HP's Lewis Platt *failed to address in a statement perceived unmet sales expectations at the high end*

For example, while HP Chief Executive Lewis Platt cited several areas of concern in the company's recent quarterly report [CW, Aug. 23], one of the most notable to the financial community is a growing reliance on commodity items sold through indirect channels, where severe competition for products such as printers, PCs and local-area networks keeps squeezing profits.

Lowering expenses

The HP spokeswoman countered that HP's printer business, even though it relies on the indirect channel, has a higher-than-average profit margin within HP because of exceptionally low operating expenses.

She said HP is working toward lowering operating expenses in other product areas through such means as early retirement, curbing new hires and reducing administrative costs.

Meanwhile, the shift in HP's business mix toward a heavier contribution from PCs, printers and LAN products helps underscore a shortcoming that Platt, for all his candidness in the recent financial disclosure, failed to address: a perception of unmet sales expectations at the high end.

Specifically, despite brazen talk during the last 15 months about replacing mainframes with HP 9000 and 3000 minicomputers, the company's big iron replacement campaign seems to have slowed down following an early spurt during which HP sold 200 of its Corporate Business Systems in the months following those computers' May 1992 introduction [CW, Aug. 9].

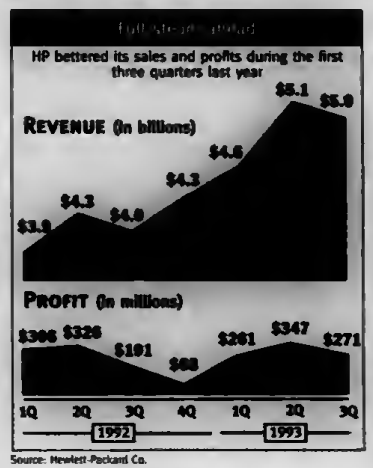
Slice and slash

Among the factors believed to be curbing sales are high price tags that HP slashed last quarter. HP lowered prices on a four-processor model of the Unix version of the Corporate Business Server from $668,500 to $360,000 last June. "They took some relatively aggressive pricing action," said Salomon Brothers, Inc. analyst John Jones. "Gross margins shifted lower than we expected."

Jones said that HP slashed high-end prices not only to spur sales but also to make room for forthcoming new products [CW, Aug. 9].

The spokeswoman claimed that sales of corporate business systems grew in the last two quarters but declined to quantify that. She noted, however, that the price reductions have lowered margins.

The company has also introduced lower-priced midrange Unix minicomputers and plans new MPE product introductions for September. HP also plans to unveil more powerful corporate business systems later this year.



Source: Hewlett-Packard Co.

Also troubling HP are inventory levels and sluggish growth overseas.

In one of several cautionary notes, Platt said in a prepared statement two weeks ago that "the sharp rise in inventory levels this quarter is a concern."

Analysts took that statement in part as a sign that HP is still working to resolve order fulfillment difficulties it has encountered as it uses an archaic ordering system to process brisk sales.

The spokeswoman confirmed that has been a factor and said HP is still working on building a more efficient ordering system. Inventory grew also after HP stockpiled dynamic random-access memory products to avoid a possible shortage, stuffed the pipeline with its new OmniBook notebook computer and switched from air delivery to ground delivery as a cost-cutting measure for certain products, she said.

Herwick said Platt probably overstated the concern about inventory levels and said the blip in inventories reflects an increase in unfinished goods caused by bottlenecks in production and delivery of hot items such as the OmniBook.

Trouble abroad

Platt also warned that Europe, where "order growth slowed substantially," continues to be a trouble spot because of what HP said is Europe's recessionary economy. Orders in Europe increased only 10% during the year-earlier quarter, compared with a 28% growth in the second quarter on a year-earlier basis.

HP reported combined orders in the U.S. and international markets grew 19% in the third quarter to $4.7 billion. U.S. orders were up 24% to $2.2 billion. Asia Pacific orders grew 17%, compared with 23% in the second quarter.

Herwick further pointed out that the company took a revenue hit in several European countries as the dollar gained value against international currencies in the third quarter.

Counterpoint

Because it consistently bucks the industry downturn, HP has raised analyst expectations to what some HP watchers said is an unrealistic level. Eric Fisher at Fisher Systems Consulting criticized Wall Street for focusing too stringently on quarterly hopes. "It's the kind of short-term thinking that leads American companies to lose competitiveness against Japanese firms, where the short term is five years," Fisher said.

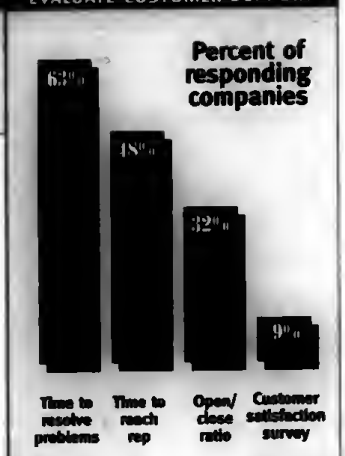
Upward climb

For the nine months ended July 31, HP revenue increased 21% to $14.6 billion, and earnings grew 9% to $879 million.

Total service financials

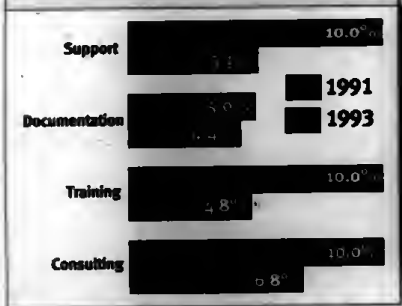
Mainframe software vendors derive significant revenues from service primarily because clients tend to be large companies with large user bases. On the flip side, PC vendors tend to deal with smaller clients, and while revenues can be considered healthy, expenses are also relatively high.

How software vendors evaluate customer support



Median turnover rates

The nation's economic condition has resulted in lower turnover among service staff employees



Per-year fees

How do your yearly support fees stack up?

	Minimum	Mean	Maximum
[illegible]	$11,250	$11,250	$11,250
[illegible]	$3,000	$9,125	$15,500
[illegible]	$15	$1,743	$10,000
[illegible]	$2,625	$4,834	$5,625

Respondent base: 120 software service providers

Source: Customer Care, Inc., Tarrytown, N.Y.

The 5th Wave *by* Rich Tennant

Inside Lines

Two, two mints in one

IBM is finally doing what users have been hammering on it to do for years: come out with an integrated strategy for managing the AIX/Ethernet and OS/2/Token Ring sides of its house. LAN Network Manager, IBM's OS/2-based management system, will be reincarnated this fall with a LAN NetView product, which IBM is positioning as a domain manager for its AIX-based enterprise management platform, NetView/6000. The two network management platforms will be able to communicate via Common Management Information Protocol and will have application portability as well, IBM's Art Obert said. IBM is porting to NetView/6000 and LAN NetView applications such as LAN Management Utilities/2, so it can manage OS/2, DOS and Windows workstations directly.

Broadened scope

Novell, meanwhile, is preparing a distributed version of NetWare Management System that will finally be based on NLMs rather than on a centralized Windows console. One of the first NLMs will be LANalyzer, Novell's LAN diagnostic and monitoring system. The rollout is rumored to be slated for Networld in October.

Navigating by nature

Microsoft is readying another version of its ODBC interface for delivery at a developers' conference in Seattle next month. The release promises support for the Win32 programming interface used to create applications on Windows NT, the ability for all drivers to scroll backward and forward through a database and, most importantly, equal support for both relational and navigational databases, according to a company spokeswoman. The support for navigational databases is intended to thwart any support Borland may be able to drum up for its rival database standard, the Independent Database Application Programming Interface.

It ain't fair!

Microsoft last week backed out of a Windows NT vs. OS/2 shootout that would have compared performance on single-tasking, 16-Mbyte 486-based desktops. Microsoft agreed to that configuration but also wanted to demonstrate the two operating systems running on Intel- and RISC-based multiprocessor servers. The organizer of the event, Barnett Bank in Jacksonville, Fla., proposed that Microsoft give its server demonstrations as part of a 30-minute rebuttal to IBM. Microsoft also turned that down because it said there would not be enough time to properly demonstrate what it believes are the superior strengths of NT.

Moving on

Meanwhile, Russ Harrison, former CIO at McKesson Corp., has left the pharmaceuticals firm to become chairman and CEO of INet Systems, a 5-year-old health care systems integrator. Harrison's role at McKesson had changed following the appointment of former IBMer David E. McDowell as president and chief operating officer in January 1992. He, too, has not yet been replaced.

Harvard University consultant Scott Bradner bestowed some self-designed awards on internetworking vendors at the traditional Interop unveiling of his independent router performance test results. One honor, The Dribble Award, went to Wellfleet, as its Backbone Node router dropped packets on about 75% of its forwarded data. Gandalf walked away with the Bits Per Pound trophy for its ability to shove gazillions of packets through a cigarette-case-size bridge. (Only trouble was, a software glitch kept them from arriving at their destination.) Cisco was the loser of that award because of the 135-pound mass of its high-end Cisco 7000 — which, by the way, it withdrew from the benchmarking in the eleventh hour reportedly because the company was "between product cycles." Finally, Most Improved Router went to the IBM 6611, which nearly doubled performance this year. Of course, IBM had the farthest to go. "Now they've only half as ridiculous," Bradner said. Phone, fax or CompuServe News Editor Alan Alper with news tips at (800) 343-6474, (508) 879-0700 or 70537,2412, respectively. Or try Computerworld's 24-hour voice-mail tip line at (508) 820-8555.

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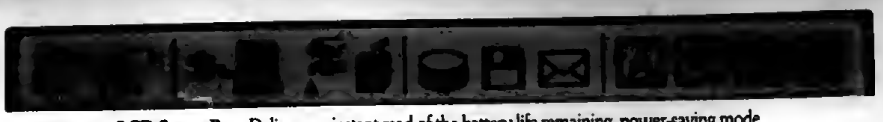

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